

HINTS ON HORSES

WITH SHORT NOTES ON

CAMELS AND PACK ANIMALS;

ALSO

A few Practical Suggestions on the Training of
Polo Ponies and Players,

AND

GYMKHANA TRAINING AND RACING,

COLLECTED BY

MAJOR H. P. YOUNG,

Late 4th BOMBAY CAVALRY ("Prince Albert Victor's Own"),

Author of "Hints on Sport."

FROM THE AUTHOR,
BRYANSFORD, LEAMINGTON SPA.


THIRD EDITION. 1 PRICE ONE SHILLING NET.

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1907.



JOHN A. SEAVERN



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Field-Marshal H.R.H. The Duke of Connaught,
K.G., K.T., G.C.B., etc., etc.,
INSPECTOR GENERAL OF THE FORCES.

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PREFACE

TO THE 3RD EDITION.

THIS little book is not written for those who thoroughly understand the horse, and all his ailments. It is meant simply for the ordinary horse owner of England, although incidental reference is made to the treatment of horses in India.

I have mentioned only the common diseases and injuries, and their treatment, as simply as I can, in dealing with so big a subject.

These notes are compiled from knowledge gained at the Aldershot School Lectures, and by carefully studying Fitzwygram, Hayes, Stonehenge, Youatt and the Badminton Library. To these great authorities I refer you for detailed information.

As many men are often put in charge of camels and mules when abroad, I have written a few notes on these animals, and also a paragraph on horse sickness in Africa.

To these are added notes on training ponies for polo, and a few notes on gymkhana racing.

H. P. YOUNG,
Major.

BRYANSFORD,
LEAMINGTON.

From "The Griffin's Aide de Camp."

What gives a horse endurance	..	..	Blood
What gives a horse speed	..	..	Blood
What gives a horse beauty	..	..	Blood
What gives a horse a thin skin	..	..	Blood
What gives a horse a straight croup..	..	..	Blood
What gives a horse large thighs	..	..	Blood
What gives a horse a well-formed hock	..	..	Blood
What gives a horse a light neck	..	..	Blood
What gives a horse a large eye	..	..	Blood
What gives a horse a wide jowl	..	..	Blood
What gives a horse a thin open nostril	..	..	Blood
What gives a horse a deep chest	..	..	Blood
What gives a horse a flat shank bone	..	..	Blood
What gives a horse a wiry limb	..	..	Blood
What gives a horse large back sinews	..	..	Blood
What is the real meaning of blood	<u><i>all the above.</i></u>		

CHAPTER I.

Buying Him, or the Conformation of the Horse.

THE VALUE of a horse is the price you can get for him, except favourites.

NEVER buy a horse without getting on him.

A GOOD HORSE is one with *many* good, few indifferent, and *no* bad points—one bad point neutralises many good ones. The strength of a chain lies in its weakest link. In a chain it does not matter if a link is extra strong, but in a horse no part must be disproportionately strong. Excess of power in one part may be a source of weakness; thus a well-developed carcass with deep back ribs will ruin light legs, an extra good fore hand will cause weak hocks to fail. Powerful hind quarters will ruin weak fore legs, though they might have lasted for years if the propelling power had been less good.

Consequently, when you are buying a horse look first for *bad* points—one serious bad point condemns the horse at once—bad shaped feet, small eyes, too much white in eyes, bad loins, flat sides, straight shoulders in a riding horse, too long between knee and fetlock, tied in below knee, toes turned in or out, bad shaped hocks, calf knees, weak pasterns. No matter what good points the horse may have, any one of these condemn him either for use or pleasure. There being no really bad points, then look for the good points, and then vet. him. If you do this, you will save yourself endless trouble in choosing a horse.

THE HEAD should be small, as being at the end of the long lever of a neck; if large and heavy, it tires the ligaments. The forehead *must be wide* to give room for the brain, the eyes wide apart; a slight depression on

the nose is a sign of good breeding, a big dip of the nasal bones is to be avoided. A small muzzle, but big nostrils. In selecting turn up the wing of the nostril to see if it is large; *big* nostrils are essential, *jaws must be wide*, if narrow they prevent a good bend of the head. The eye to be full, clear and soft; a sunken eye is a sign of disease. Ears pointed and small. A horse that shows much white in his eye is nervous and often vicious.

THE NECK.—If the neck is short, it is bad for riding, as, of course, there will be short rein. The horse should be long in the rein, with the crest firm. A short neck is found with a heavy shoulder. Ewe necks are eye-sores, and bad for hunting, as the horse will probably be a star gazer. The mane of a well-bred horse is silky and fine; a curly mane and tail shows bad breeding.

WITHERS should be moderately high; high withers are weak but pleasant for riding; if low, the saddle slips forward; they should not be thick and coarse.

THE SHOULDER has two bones, the scapula and humerus; the first should be long and sloping, extending from a little behind the withers to the point of the shoulder, because if the handle of the crank is short we lose mechanical power. A horse with an upright scapula has cramped action. The humerus should be short. A plumb line dropped from the point of the shoulder should drop one inch in front of the toe. Heavy shoulders are only good for draught.

THE CHEST should not be too wide, or the legs will be too far apart, and the horse uncomfortable to ride; if narrow chested the horse will brush. The chest must be deep—as deep as possible. Wide chests are good for draught.

SIDES.—Avoid a slab-sided horse, they are weak constitutionally and physically, and uncomfortable to ride, as the girths slip; but when very round in the ribs, the horse has a tendency to girth-gall from the girth slipping forward. The ribs should curve well to give room for the lungs. But depth is the great sign of

endurance ; the horse should look short above and long below.

THE BACK extends from the withers to the loins ; if over long it is weak, and especially weak if dipped ; if short there is unpleasant action, and the horse is liable to over-reach and click. A hand's breadth between the ribs and hips is the right thing. If there is less the horse can't gallop. The loins must be powerful for weight carriers. To see the loins, get on the horse and look down on them ; they must be wide. A roach back is strong, and can do work.

HIPS.—A ragged-hipped horse is an animal with prominent bones. Hips should be tolerably broad ; if ragged there is a dip below, which shows want of muscle. To see a horse's hips stand behind and a little above.

PELVIS should be broad, but not too broad, or the horse's legs will be wide apart, and he will waddle. If narrow the horse brushes behind. A horse when split up has a deficiency of muscle inside the thighs.

THE QUARTER must be long and straight ; for speed a little higher here than at the wither, and avoid a quarter that looks a size too small for the horse. It often comes through breeding from a good sire and a smaller dam, *vide* some country breds in India. Goose rumps are often worthless, yet there are many good weight carrying hunters in Ireland with goose rumps ; but then, these horses are beautifully let down.

FEMUR should be long and strong, and slope forwards.

TIBIA slopes back. If it slopes back too much the hock is too far behind ; if straight the hock is straight.

STIFLE BONE should feel clean to the touch.

THE THIGH MUSCLES must be prominent and well developed.

HOCK should be large and bony. There are ridges on a good hock, which must not be mistaken for the enlargements of spavin. These ridges afford attachments for the ligaments. When the hocks are too far back they are weak, are called sickle hocks, and are liable to curb.

If the hock is too straight, the horse is liable to spavin from concussion. Cow hocks are weak, these turn in; hocks turning out are weak. The hind bone of the hock should stand out well and clean.

FORE LEG.—The fore arm should be well developed and long; if short the muscles are short. The cannon bone must be short; if long it is weak, and the sinews liable to sprain. The elbow must be well developed, and not dig into the ribs. Have the elbows well out. The knee bones should be well defined; the trapezium or hind bone should stand out well to give prominence to the tendons. If the tendons do not stand well out below the knee the leg is tied in and worthless for work. The leg below the knee should be flat and broad, and fluted looking, the suspensory ligament clearly visible. Calf knees very objectionable. The long pastern bones should have a moderate slope. If too long there is a strain on the sinews; if too short there is concussion and chance of ring-bone. Long pasterns are weak, but pleasant for riding for light weight men; but they are liable to let the fetlocks down, and so the fetlocks often get badly cut. The bones at the back of the fetlock should be big. The tops of the heels should spring like india-rubber.

FEET should be at an angle of 45° , should be small with good open heels, and sound frogs. Flat feet are bad, being liable to injury. A ringy foot is a sure sign of disease. Blue horn is stronger than white horn in the hoofs. There should be no depressions; reject a horse at once whose feet show rings or depressions.

THE VETTING OF HIM.—In choosing your horse, manage to see the animal in a state of rest in his stable, and take care that no one attempts to excite him in any way. Let him stand in the position he most fancies, and watch him in that position; see if he favours any leg: the weight should be equal on both fore-legs always, though the horse often rests a hind leg. If he has navicular disease he will point one foot, thus raising the heel. If a sinew is damaged he will rest that leg. You will see if he cribs or weaves. Then turn him

quietly across his stall, and see if he catches up either hind leg as if it hurt him; if so, suspect spavin.

To detect spavin, forcibly pull up suspected leg and keep hock bent for one minute. If he then goes sound he is probably sound. Feel his legs next for *heat* in the *feet* and sinews.

To detect heat when it is very slight, wet both legs, wait three minutes, and then feel. Having found nothing against him, ask to have the horse brought out. Stop at the stable door and examine the eyes and teeth. There must be no specks and no opacity in the eyes. (See Ophthalmia.)

When the horse moves out, watch well the first few steps for lameness. Incipient spavin is often only shown on first coming out of the stable. Have the horse trotted slowly with a loose rein, and watch the quarters as he goes from you—the quarter of a lame leg will be carried high. Watch the head as the horse comes towards you; if the horse is lame the head will nod as the sound foot touches the ground. Then cough him by slightly pinching the head of the wind-pipe; if he is all right he coughs sharply, if he has broken wind the cough is soft. Run the hands down the sinews to feel for lumps, the remains of old strains.

Sponge the hocks, and look through the fore-legs at them. They must look alike and feel alike. Choose a horse with the following three bones big—the elbow bone, the bone at the back of the knee, and the point of the hock. Wind galls, etc., are signs of work, and detract from value. The fetlocks must look and feel clean; look for brushing marks, cuts, and over-reaches. See the hind fetlocks don't brush. Feel the back of the heels to see if they are springy, and feel for ringbone. Feel the sesamoid bones at the back of the fetlock. Look just above the fetlocks for a scar left if the horse has had the nerve cut to prevent feeling in the foot. Gallop the horse, and listen for roaring and whistling. Look for glanders.

Back the horse a few steps. Watch if he puts toes of fore feet firmly to the ground; if he seems to avoid throwing weight on the toes, suspect fever of the feet; also note loins. See there is no flinching as he backs.

Turn him sharply round and watch for flinching. If the horse flinches the loins are injured, either by a strain or from kumree. Anyhow, cure is almost hopeless.

You now pick up the feet, and look for sand crack, rings round the hoof, and any depression. Take off the shoes and look for corn and seedy toes; see the state of the feet, and the appearance of the frogs. Rings round the hoof are a sign of fever in the feet; it is the trace left by the disease. Pumice feet are the sign of chronic laminitis. Flat feet are weak and troublesome. Look at the hind shoes to see if they are worn at the toe—a sign of spavin.

If you still find nothing against the horse, ask to ride him. You can find out all you want in five minutes. If he is light in the mouth, or if he pulls, see if he shies, and see to the general temper of the animal.

The colour of the horse is simply a question of taste. Grey horses are unpleasant to ladies, as the hair gets on the habit and shows; but in any case see that the extremities are as dark or darker than the body, and that the colour does not fade in the legs and fetlocks, this being a sign of bad circulation and constitution. I am not speaking of white legs to a dark body, though I do not like white stockings as a matter of taste.

If you are in doubt between two horses, choose the one in which the following three bones are biggest: The elbow, the bone at the back of the knee, and the point of the hock.

THE AGE.—The age is best looked for as the horse comes through the stable door, because you get a good light. Horses have tushes, and mares have no tushes. The teeth are temporary and permanent. The mass of the tooth is dentine; enamel covers the crown and some distance down it. Another substance covers the fang, called cementum. A tooth consists of crown, neck, and fang. The tooth has two cavities, the infundibulum or mark, and the fang-hole below. The fang-hole below contains blood vessels and nerves. The lower jaw incisors are smaller and shorter than the upper jaw. Milk teeth are grooved on the inside. Milk teeth are only covered with enamel externally. Milk teeth have a neck; permanent teeth no neck. There are six incisors above and

six below. The middle pair are the centre incisors, next are the lateral incisors, and the out-side ones are the corner incisors. The foal is born with two incisors above and two below.

At six weeks the lateral incisors appear ;

At nine months the corner incisors appear ;

At one year the milk teeth are complete ;

At two years the centre incisors show signs of wear and the teeth are close together ;

2½ years—centre replaced by permanent incisors ;

3 years—two centre well up, remaining milk teeth ;

3½ years—lateral permanent teeth appear ;

4 years—there are four permanent teeth, and the corner incisors still milk teeth ;

4½ years—corner incisors shed and replaced, and the tush appears ;

5 years—full mouth, but the corner incisors shell like still, centre ones beginning to wear ;

6 years—centre mark faint, others plain ;

7 years—centre gone, lateral faint, corner plain ;

8 years—all marks gone, but tush long and sharp still ;

9 to 10 years—the teeth begin to get triangular, and the tush gets yellow and worn, and as the horse gets older the teeth are worn down till the fang-holes appear, or the second marks ; some horses with white teeth don't show age well.

At 9 years old a brown mark appears near the gum on corner incisors, and year by year extends downwards in a line. It is a great help to guessing age between 8 and 12.

Much depends on the food the horse has had and its effects on the teeth. I have owned a horse I knew to be eleven years old ; by his mouth he was eight years old, the tush sharp, and the corner mark still showing a little, teeth short and white. I have owned a horse that at six years old had lost all his marks ; but I knew he was only six years old, as I bought him with the milk teeth in only two years before. As horses get older the teeth get yellow, triangular, and slant, and from the gum receding they get long.

To detect bishoping look for the ring of enamel round the mark. The horse sharper can make a mark,

but he cannot replace the enamel. Second marks, of course, have no enamel round them.

What may be taken when perfection cannot be obtained? You may pass and buy a horse with a small bone spavin, the horse being aged and the spavin formed the leg will move a little stiff, but the horse won't be lame. Of course deduct in the price paid. I have owned a horse with a ringbone that was troublesome. Six months' rest allowed the growth to form, and shod carefully that horse worked hard as second charger and hunter, and travelled once 180 miles in 60 hours. But ringbones are risky. A splint formed, if not close to the knee or sinews, won't be likely to cause trouble. Avoid bowed sinews. Broken knees are always difficult to sell; the horse has fallen, and the purchaser imagines he intends to fall every day. Avoid horses with traces of disease in the feet; they won't stand even gentle trotting work in a trap. A suspicious sinew may stand gentle trotting in a light trap, but they are always liable to go again in saddle work, or pulling a heavy load on a steep hill. Horses with ossification of the fetlock often do lots of hard work, once the ossification is fully formed. Windgalls are merely eye-sores, and show hard work. Bog spavin is also an eye-sore, and though it does not actually interfere with the horse, it shows weakness and work. Avoid horses with traces of eye disease. Avoid a horse with any trace of weakness in the loins.

N.B.—The bone of a well-bred horse is close set in the Arab and thorough-bred, more like ivory; in a cross-bred horse it is like ox bone. Consequently, the legs of well-bred horses, though slighter, stand work better than the legs of coarse-bred ones.

DEALERS' CONDITION.—The horse is nicely fat, looks well, with a fine gloss on the coat, and about as unfit for work as if he were hide-bound; in work the horse would fall to pieces, and the legs would fill. But in buying a horse in this condition you have the satisfaction of knowing that it is a horse that can put on flesh and look well. Dealers' condition can be produced by feeding on soft food, lucerne grass, linseed mashes, clover hay, carrots, and only half the usual allowance of corn. Arsenic gives the coat a fine gloss; warm clothing

also helps. Nitre and sweating bandages have probably fined down the legs.

GOOD CONDITION.—The horse has his ribs well covered but is not fat, with the quarters well filled out with muscle; the quarter mark shows not from poverty of condition, but by the big muscles on either side standing out. The muscles inside the thighs are well developed; the muscles on the fore-arm and above the hocks are standing out well; the crest feels hard; the coat shines; the eyes are clean and bright; the belly is nicely up, but not tucked up; the horse has all round a pleased-with-himself air. If with all the above the feet are cool, and the fetlocks and sinews cool and fine, the horse is in first-rate condition.

BAD CONDITION.—The horse looks out of sorts; the coat stares; the fetlocks are puffy; the quarter mark is showing from poverty of condition, called in this case the poor man's mark; the horse is split up behind from falling off of muscles inside the thigh; the stomach is down, and the flesh off the ribs and back; and the quarters look hollow instead of rounded out. The cause may be the misfortune to the horse of a bad owner, worms, illness. The above-mentioned causes can be altered or removed, and the horse can be made fit; but there are some horses which are wanting in constitution, flat-sided horses whose very conformation is against their getting to look well, or be well. These horses are best avoided.

Salt is necessary to a Horse, whatever be his condition.

If you have bought a horse in good condition, as described, regular work, regular feeding, a bran mash on Saturday night and a few carrots, with good stable management, will keep him in good condition.

If he is in dealers' condition, fat and soft, I recommend a mild dose of physic: in England, say $4\frac{1}{2}$ drachms of aloes to a 15-2 hand horse, after preparation for physic; in India, 3 drachms of aloes to an Arab, after the usual preparation for physic. It gets the fat out of the stomach and cleans the stomach, and you start fair. Don't over-feed, and give regular, very gentle work, increasing the work by degrees. A good way to exercise these horses is

gentle trotting in a light trap ; in a pair for choice. The reason I say in harness is because he does not have to carry the man's weight as well as his own fat body.

If the horse is in bad condition, first of all see if he has worms. Give a dose of santonine, followed by a mild dose of physic. In India give palas papra, six seeds every morning on an empty stomach for one week, and a mild dose of physic. Men hardly know the value of this seed, whether as an alterative to the horse or as a vermifuge. Having found out about worms, and having cleaned his stomach, give easily digested food and plenty of carrots and a claret glass of linseed oil twice a day. In India parched gram will often put flesh on a horse, when more elaborate systems have failed. Give regular exercise, suited to the strength of the horse ; light trap work is good. Half a drachm of sulphate of iron and 1 drachm of gentian or chiretta in his food helps greatly, to be continued daily for a fortnight. Green wheat fattens ; give 10-lbs. a day.

BREEDING.—Mr. Spooner states that the influence of the parents is communicated to the offspring by halves. The male gives the back, loins, hind-quarters, skin, and general shape ; the female gives the fore-quarters, the vital and nervous systems. The size and contour is influenced by the male parent, and the constitution by the female parent. “Blunt Spurs” remarks—“For true it is the bandy-legged beget the bandy-legged ones.” If the sire and dam have windgalls and weak legs the offspring will have them. Again, it is important that the first horse a mare breeds from should be a good one, because all her subsequent progeny will probably bear a strong resemblance to that first horse, which is supposed to arise from certain impressions made on the imagination or nervous system of the mare. It is dangerous to breed from an animal with important defects, however high the pedigree.

By breeding, men can modify the form of their stock, and these modified forms can be transmitted to the progeny. Seek improvements in form through the medium of the male.

I finish this chapter with the hint, the axiom, that it is just as cheap to keep a good horse as a bad one.

CHAPTER II.

The food and care of Horses.

Embarkation of Horses. Long distance Riding.

FOOD.—Having bought a horse, the next thing is how to feed him. Food in the mouth comes in contact with two juices, the saliva and the mucus. Saliva is alkaline, and acts on the starch of the food, changing it to grape sugar. Food passes down the near side of a horse's neck. Food in the stomach meets the gastric juice; this is acid in its nature, and its chief ingredient is pepsine. Mixed with the gastric juice, the food is called chyme. Leaving the stomach, the chyme passes to the lower intestine; here it meets with the bile and is converted to chyle. The chyle is taken up by myriads of vessels called lacteals, and emptied into the blood. The horse's stomach is small, hence it must be fed often; the reason being, nature meant the horse for fast work, wherefore the small stomach; the opposite form is the cow.

HAY.—The hay should be good upland; it is known by its colour, and contains herbage such as clover. In colour it should be brownish green, and smell in the rick at a year old the same as when new. To tell if hay is new or old, break the bent and see if there is any sap in it. In old hay the flowering heads are shriveled up. Good hay is free from dust; dust is the breaking up of the flowering heads and the outer coats of stem and leaves. See, in opening a truss of hay, that the bents for the most part lie in the same direction; it shows that rain has not fallen on the hay, therefore that much tossing was not required. Herbage is clover, sainfoin, and many of the weeds, such as lamb's tongue; they give a grateful flavour to hay, and horses like them. The best grasses

are seven in number, and the hay should mostly consist of these, as their presence shows the hay was grown on good soil. Their names are : Rye grass, meadow fescue, cat's tail, fox tail, crested dog's tail, sweet vernal, and cock's foot. These grasses are easily recognised by their flowering heads. After them in value come the several kinds of meadow grasses. And, lastly, there are the water grasses, which are unfit for horses. By noticing the grasses found in a truss of hay on opening it, one can easily tell whether it is good upland hay, ordinary meadow hay, or hay grown on marshy land.

The second crop hay, or aftermath, is valueless for feeding horses ; there are no flowering heads.

The hay must be cut before the flowers of the grasses have seeded, or the value of the hay is gone. Farmers often wait too long, as the bulk gets heavier, but the quality of the hay is nothing like the same.

Hay may get mow burnt by over-heating in the stack ; this is known by the brown colour and sweet smell. Mow burnt hay is bad for a horse's teeth, and it produces profuse staling. Musty hay is known by damping and smelling ; dusty hay will injure a horse's wind. Badly mow burnt hay and musty hay and very dusty hay are almost poisonous.

The hay of the year should not be used till November. It is best a year old.

Green forage in quantities is bad on an unprepared stomach. Winter grass is innutritious. A good way of picketing to feed is to strap the nose to above the knee with a loose rope.

In India the best grass is the hurryalee ; a grass cutter is employed to cut it, and brings 40-lbs. weight per horse. He should not be allowed to wash it, for many reasons, one being that he will probably use putrid water for the washing ; besides, water increases weight. Another reason is that washing grass causes rapid decomposition, and unless the grass is opened out and quickly dried, it may cause colic. Loodhiana fever is caused by horses eating grass that has been washed in putrid water. Beat the earth out, when dry, with sticks. Dry one day in the sun, and give it the horse on the third day ; it will then weigh 20-lbs.

The next best grass is seepee: season August to November. It is as good as the hurryalee, but does not last all the year like the first. Both these grasses are used in training horses.

TARES.—Good feeding in England in early summer. Cut it after the pods are formed, and before the seeds are ripe. *Vicia sativa* is the best sort, it is slightly aperient; it is very good if a horse gets surfeit and rubs himself. Give 10-lbs. a day, subtracting 5-lbs. of hay.

CLOVER is useful for soiling a horse, but is inferior to tares. The hay is good for horses in slow work, but not for hunters or hacks, unless when sick.

OATS.—Always give chaff mixed with the oats to make the horse eat slowly. Always crush oats. Good oats are clean, hard, dry, sweet, and plump, with a metallic lustre, and weigh 42-lbs. to the bushel. Fair oats weigh 39-lbs. to the bushel; Government contract is 38-lbs. to the bushel. To measure and weigh a bushel, thrust the bushel into a heap of oats, strike it with a rounded stick, and weigh. Don't allow any kicking or tapping the bushel. It is not the same thing at all to give a horse 10-lbs. actual weight of oats, good or indifferent. In good oats the 10-lbs. weight will be less bulk, but contain more flour than the 10-lbs. weight of indifferent oats, which contain more husk. The feed of a troop horse is 10-lbs. of oats a day; big carriage horses are well fed on 14-lbs. of oats; 13 hands 2 inch ponies do well on 6-lbs. of oats a day; a 15 hands horse eats three quarterns of oats and 10-lbs. of hay daily; 13 hands Welsh pony 1 or 2 quarterns of oats, according to work, and 8-lbs. of hay. But oats are not usually weighed out to the horse; they are given by the measure. A quartern of oats is the usual feed.

Four quarterns make one peck,
Four pecks one bushel,
Four bushels one sack,
Two sacks one quarter.

The horse will eat 3, 4, 5, or 6 quarterns a day, according to his size and work. Don't buy crushed oats, buy oats, and send them to a mill to be crushed, or have a machine

of your own ; you will then know what you are buying. Black oats are as likely to be good as white oats, but I prefer myself white oats. A stick thrust into a sack of oats should pass through quickly and easily ; if it sticks half-way the oats are probably indifferent. Oats should have no smell ; new oats have an earthy smell.

Take a large double-handful of oats from the sack ; if they are hard it is all right, but if they feel soft and collapse the oats are soft and bad. New oats are indigestible, and militate against hard condition. New oats have a microscopic down on them ; old oats have no down. Fumigated oats are those which have been exposed to the fumes of sulphur to improve their appearance—avoid them. Foxy oats are those which have been overheated by being kept in bulk till they are red in colour and bitter ; these are the oats that get fumigated. Damp oats should not be given. Never keep oats in the sack ; keep them in a heap on loft floor. Foxy oats are poisonous.

OTHER FOOD.—BARLEY is a good feeding grain when the horse is accustomed to it. Begin with a little. It is very good when parched and ground. Boiled barley is fattening and good.

WHEAT is bad, but when it must be given mix it well with chopped straw. It is indigestible. 10-lbs. of green wheat daily fattens a hide-bound horse.

Bran is the husk of wheat, and acts by a healthy invigorating action on the mucous membrane. Coarse bran is best ; bran dry binds the horse. To make a bran mash scald out the pail, put in 3-lbs. weight of bran and pour on boiling water, stirring well, till all the bran is evenly wetted. Enough water is required to soak all the bran, but no more. Don't make it sloppy. Cover with a sack and leave it for an hour.

LINSEED and flax seed is good as a mash when boiled, but they require boiling for at least two hours. It must be soft enough to squeeze readily between the finger and thumb. It forms a sticky mass, and this is mixed with bran mash and given. Two lbs. of linseed and 2-lbs. of bran is a good feed for a horse ; it is very soothing to the stomach and intestines. Linseed may be given either

Boiled as above; it is a lot of trouble. May get burnt if not kept stirred, and takes a very long time to cool; or

Steeped for six hours in cold water; far less trouble and just as effective; or

Ground to powder and mixed with corn; this is the best way, but it is difficult to grind.

Boiling is best for a sick horse.

Steeping for ordinary use if grinding is impossible.

Ground to powder best if horse is in good health, and you only want to get flesh on him and a polish on his coat.

Linseed gruel to a sick horse is very good; make it thin. Boil $\frac{1}{2}$ -lb. of linseed in two gallons of water for two hours, strain off, and boil. Linseed oil is good for putting on flesh and for making the coat glossy—say claret glass twice a day; if it purges, then once a day.

BEANS are good for horses doing fast work, but they are very heating; better for old horses than for young horses. Two lbs. a day is ample for any horse in addition to his oats. Beans should be one year old and weigh 60-lbs. to the bushel; they should be given crushed. In hard work give beans, they help a horse.

POTATOES may be given raw, sliced, or better steamed. Fifteen lbs. of potatoes equals $4\frac{1}{2}$ -lbs. of oats.

GRAM.—In quantities over 8-lbs. a day often makes a horse scour and get foul, it is so heating. Mix chaff with it. It is the grain usually given, and it answers well for Arabs. About 7-lbs. a day is ample; with bran 3-lbs. a day, given dry. The gram must be one year old, and should be given crushed. You may damp crushed gram at the time of giving, but never steep crushed gram. Steeping whole gram till it is soft is quite another thing, and is good. Parched whole gram is very good. Gram ripens in April and comes into use in October. Good gram is free from insect holes, reddish brown in colour, and should sink in water; olive green gram is unripe. Gram when ripe and fit to use swells in water

in two hours. New gram is so hard that it takes ten hours to swell. New gram, from its hardness, is very difficult to digest and very heating. Be careful, then, in May, when the new gram comes in, to see you don't get it.

INDIAN CORN.—Most dangerous if you chance to give water soon after ; it swells tremendously, and it heats the feet, but it is fattening ; give bran mash also.

CARROTS are very cooling given to a sick horse ; they improve the coat. Good for broken-winded horses, but not too many if fast work is wanted. The carrot tops are very laxative. Always give carrots sliced lengthways, or you may choke the horse. Horses in hard fast work may get 1-lb. of carrots a day ; when sick 6-lbs. of carrots a day.

TURNIPS only fit for cart horses. Swedes good for a sick horse.

Horses like the mangold wurzel, and a little is good for them ; it is cooling in the spring.

OATMEAL is good for gruel. Take one pint of oatmeal with sufficient water to make a mass, then add three quarts of lukewarm water ; a quart of ale, or two glasses of whisky may be added. Gruel, as above, most useful when horse is exhausted. When staging it is a good plan to give a lb. of oatmeal in half a bucket of water in the middle of the journey. Youatt says, to make oatmeal gruel, take 1-lb. of oatmeal to a gallon of water ; stir till it boils, and then boil for another five minutes.

LUCERNE GRASS is much given in India. Twenty lbs. a day when preparing for physic ; 10-lbs. when wanting to get a horse into fat condition, with 15-lbs. of dry grass or kirby ; 5-lbs. a day for horses in ordinary work, with 15-lbs. of ordinary forage ; 5-lbs. on Sundays for horses in training.

To sow lucerne, spread over the ground rotten stable manure thick, or dried night soil, and plough or dig it in, and pulverise the earth. Sow the lucerne rather thin in rows half an inch deep ; ground must be clean.

Cut when breaking into bloom, or it will get hard in the stalks. Three or four cuttings a year for ten years.

WATER.—Always water before feeding. The reason is that the water passes through the stomach to the large intestine called the cœcum, or water gut. If you water soon after feeding, the water will carry on with it the undigested food to the cœcum; the food will here swell with the water, and the result is colic. Horses don't stand thirst well. Horses may drink immediately after return from work, even though hot and wet, because sweat is the water of the blood taken out through the ducts. The blood is, after sweating freely, in a thickened condition, and it passes with difficulty through the lungs; this causes distress to the horse. If you give water it is taken up at once into the blood, and the blood is restored to its natural condition, and the horse's distress is relieved. No harm can possibly result, but it is a good precaution to take the chill off the water; but, anyhow, give water to the hot wet horse to the extent of twelve go-downs. Always give water the last thing at night, say 10 p.m., especially after hard work; it saves much distress to the horse. *Always have water in the stable if you can.*

Horses prefer soft water to hard water, so give from a river sooner than from a well. It is almost impossible to keep a horse in good condition on hard water. Boiling softens water by depositing the carbonate of lime. Leaving water in the sun is good. Rain water is often charged with vegetable matter, and so is bad. Lime salts in water is very bad. On board ship the allowance for a horse is eight gallons a day.

The less water a horse requires after work the harder his condition. Watch this sign; if he requires more than usual he is getting stale. A horse in soft condition drinks largely, but don't cut short his water, only watch what he drinks.

BEDDING.—Wheat straw is good, but not barley straw, as it produces itchiness in the skin, and not oat straw, as horses like it too much. The Government allowance is 8-lbs. This is enough daily for stalls; but straw, though good, is often expensive, unless you can get a farmer to take the manure for the straw.

Straw requires to be turned out of the stable every day to air, and while drying the horse has to stand on the hard stones ; we all know how tiring pavement is to the feet.

Again, on a straw bed a horse often slips badly on rising, from getting his hoofs through the straw. It is always good to put down a little fine moss litter or sawdust below the straw to give a foot-hold, so many horses are lamed by this slipping.

Straw is liable to catch fire from carelessness.

Straw when dirty throws out quantities of ammonia, which is one great cause of blindness in horses.

So straw bedding is only good when clean, using moss litter below. Never pile bedding under the manger.

SAWDUST makes a very dry soft bed, prevents slipping, and if the dung is constantly removed, two sacks will last ten days ; but sawdust is too dry a bed, and is said to make the feet brittle and is not cooling to the feet. It holds the ammonia fixed and so is not as dangerous to the eyes as straw, but if down long it throws out ammonia.

SAND.—A soft dry bed ; horse does not slip, but in the same way as sawdust it is too dry. The dung must be constantly removed.

SPENT TAN from the tanneries is the best bed for the feet. It must not be too wet ; if so, dry it two days in the sun. If too wet it will cause thrush. Keep the dung removed, and don't keep it down too long without renewal.

MOSS LITTER is very good. A bale of moss litter costs four to six shillings, according to size ; it will last, with proper turning and shaking up, a month to six weeks. Constantly remove the dung, and don't let it get trampled in. The bed to be six or seven inches deep and well broken up, or for the first few days the lumps are uncomfortable, and the feet may slip in rising. It gives out no ammonia, and so is good for the eyes. Grooms don't like it, assert it makes the coat dusty, but they have brushes !

STABLE MANAGEMENT.—Keep the stable cool, but not cold ; if the stable feels stuffy and close to you, it feels just as close to the horse. Have a ventilating shaft to carry off the fumes through the roof ; have ventilating bricks let in below to keep up a current of pure air. See that the windows open without letting a draught direct on the horse. In hot summer weather leave stable door open by night and day. Have the stable drain pipe outside the stable—the drainage inside being surface drainage—by grooved bricks running to broad flat gutters, also brick, which will lead outside to the trap and main-pipe drains. Grooves in the bricks should only run down the stable, and not be cross cut ; it makes all the difference in keeping the stable sweet and clean, and, as in a good stable the horse always stands on litter, there is not much chance of slipping.

For clothing, one rug, one blanket, and a headpiece in winter, and one rug in summer is sufficient in England. The rug to be full size, meeting well under the stomach and well over the chest, fastened by a strap and buckled ; if it is tight here it will soon tear. Over all comes the roller. The headpiece must be well made and fitted, or the straps give, and it tumbles over the horse's ears. During the day in summer the rug may be removed, and often also by night when there is no wind. Eye fringes are necessary in India. The roller requires a breast-strap ; it is dangerous if it slips back.

Duty in the stable begins at 6 a.m. in the summer, and say 7 in the winter. Water, feed, sweep out the stall, pick out and wash hoofs, and rub the horse over. Give oats mixed with chaff, and very little hay. The litter to be taken out, shaken, and dried ; never allow litter to be piled up under the manger.

The feeding hours depend on the time the horse is wanted for work, and the number of feeds given ; always remember, water before feed. At eleven the horse is groomed and finished off with a damp chamois leather. In the evening plenty of wispings. You may dispense with much brushing at evening stables and rub legs and bed down. Never wash the legs, and only wash out the hoofs at the time of cleaning the feet, and then dry the heels at once. If the horse comes in muddy, let the mud dry

on, and brush it off when dry, don't wash it off; that gives mud fever and cracked heels. The groom should always visit the stable the last thing at night, and offer water.

Light coloured horses are often left racked up tight by lazy grooms to prevent lying down and dirtying themselves. The more a horse lies down the better for his legs; the more hand rubbing the legs get the better.

To inspect a horse if he is clean, look at the nostrils, behind ears, roots of mane, and the feet. The general gloss on the coat will tell if the horse is in good condition and well looked after. Encourage men to clean the horses fast by letting them go when the horse is clean; an hour and a-half is ample for horse and saddle. Never use the curry comb except to clean the brush. The mane is cleaned by brushing it out lock by lock. The sheath to be washed twice a month, ditto the mane and tail in hot weather.

Whoever would be convinced of the benefit of friction to a horse's shin need only observe the effect produced by well hand rubbing the legs of a tired horse; enlargements subside and stiffness disappears.

Groom as soon after work as possible; if the horse is wet he must be wiped down as soon as possible. Try and bring the horse in cool, it saves a lot of trouble, and prevents breaking out in the stable. If the horse breaks into sweat after cleaning he must be dried again. Groom outside if it is warm. If he comes in hot, he must walk about to be cooled down, say for fifteen minutes; but any way, let the horse have his water—twelve go-downs. It is the owner's fault the horse is not in condition, it is the rider's fault if he comes in hot; so don't punish the horse for what is not his fault, give him water, and walk him about till he is cool, but avoid as much as possible letting him break out in the stable, as it weakens the horse and makes him ill.

Always dry between the jaws and the bend of the neck quickly after work; it saves catching cold.

Singeing can be begun 15th September and continue every month, just running the lamp over the horse. If you clip and don't singe it is usual to wait till the coat is fully grown. Horses cannot do continuous hard work

with their coats on ; it takes too much out of them, and renders them liable to breaking out in the stable, and increases the chances of catching cold. Thin horses often get fat when their coats are taken off. I recommend early singeing, keeping it up as required. The horse sheds his coat in May ; don't hurry off a horse's coat, as one week is hot, the next cold. The horse sheds his coat again at the beginning of September. For hunters it is far better not to clip or singe the hair on the legs, it saves the horse from cracked heels. Leave the hair on up to four inches above the knees and hocks.

Singeing is better than clipping, as you can't go too close, and yet you go close enough to prevent breaking out into sweat ; so singe early and often.

EXERCISE.—No groom to exercise except at time and place ordered. Have a field of your own—any way make sure the groom exercises the horse without any tricks. Two hours walking with occasional slow trotting on side of road necessary.

EMBARKATION OF HORSES.—Never embark a horse for service under five years old ; best ages six to twelve. Reject washy, shallow sided, shallow crested, lame and unsound horses. See horses are free from all infectious diseases. If near the port, or going by train, put horses on half bran and half oats diet ; but if there is three or four days' march they must get full rations. Have all the horses fresh shod, leave the shoes on, and don't take shoes off, or the horses' feet will get broken. On arrival at the port put the horses on mashed diet that night and next morning. Don't water or feed immediately before embarking, or the horse may rupture his stomach.

1.—EMBARKATION BY WALKING ON BOARD EASIEST.

2.—SLINGING IN A HORSE BOX.

3.—SLINGING BY CANVAS SLINGS.

All horses will walk on quietly if led by steady horses. Make men take off helmets and spurs. Coir matting to be laid over all plankings, to prevent slipping and to deaden sound. Slings are two feet six inches wide. Strong resolute men must receive the horse when he first touches the deck. When a horse will not move forward put a

hammock or piece of bent wood behind him, and push him on. Always put horses across a ship, head inwards, leaving a space behind horse for cleaning purposes. Leave space between every ten horses. Horses must be slung at once when they reach their stalls. Slings are now four separate girths for ventilation. Slings being adjusted are then lowered four inches below the horse's belly. The deck on which horses stand must be battened, and have coir matting to prevent slipping. Mangers are placed in front of horses.

As soon as the horses are duly slung, and the sling slackened off, give water as much as they will drink, and then in a quarter of an hour give feed of oats and bran, half and half. All horses must be clipped. Feed on board ship—5-lbs. of oats, 5-lbs. of bran, 8 gallons of water allowed per horse; a little saltpetre and vinegar is allowed. Sponge nostrils, and whisp the whole body of the horse with diluted vinegar and water. Have tubs for each section, mix the food by sections, and serve out to each horse. Hay nets required to each horse.

In rough weather the slings *must* be slack, in calm weather brace up the slings and let the horses rest in them. If in harbour for a day or two, get the horses out into the gangway, and clean thoroughly.

See at embarkation that there are sacks on board. If horses' breasts are injured by the breast board, fill sacks with hay and bind them crossways to the posts, so that they project and catch the horses' shoulders, while nothing touches the breast; remove the breast board.

Keep the horses' feet cool, and to prevent laminitis turn the hose on to them daily, and after a few days wrap the feet in wet cloths. Sponge nostrils three or four times a day.

If the pulse is low and feeble give a pint of stout twice a day with gruel. Put horse's head under the wind sail. See there are sick horse boxes on the upper deck; if not, report to the dock authorities and assistant quartermaster general, and insist on it before starting. Have these covered with canvas screens in bad weather, and directly the horse is off his feed put him on upper deck.

Pulmonary apoplexy comes from bad ventilation, and re-inhaling carbonic acid gas; horse blows, white of eyes

gets purple, and extremities cold.—Put horse at once on deck, or under wind sail, and put wet cloths on the head.

In frenzy, simply moving under the wind sail or on deck will quiet the horse. Feed on bran, and give 1 oz. of bicarbonate of potash.

The hatches should be boarded up three or four feet above the deck, so that they may always be open. Remember, hot air rises; it is no use to have the wind sail dangling over the horses' heads; one or two horses feel cool, remainder stew. Bring the wind sails down to within three feet of the deck, the cool air rushes on all sides, and the hot air escapes through the hatches. If you do not attend to this the horses will nearly suffocate.

Port ventilators required.

If a horse gets down, slip in kicking boards between the horses. Draw horse's fore-legs in front of him, put medical slings under the horse and hoist him up; or get a rail under the horse. Pick out the horses' feet daily.

Never store carrots in sacks, but let them have ventilation.

Lead horses to the camp on disembarking, and put men's kit's on horses. After a long voyage horses should be led some days at exercise. Allowance of water is eight gallons per horse.

LONG DISTANCE RIDING.—On service it may fall to your lot to carry important dispatches—railroads and telegraph lines cut, and the message must reach its destination. These long distance rides were tried one year in the Bombay Cavalry, and as I had to conduct one I offer the lesson I learnt. (Poona to Malegaon *via* Ahmednuggar.) The distance set was 184 miles; the strength of the party one officer and six men, with one horse each; the distance was done in sixty hours and a half; the horses carried over thirteen stone.

1st—Choose horses from seven to nine years old.

2nd—Choose horses with good feet and good constitutions, horses that are known to be good feeders.

3rd—Reject any horse that stumbles in his walk; this is very important.

4th—The horses require no training, but they must be in hard condition.

5th—Reject horses that are liable to girth-galling.

With regard to yourself—wear drawers that cover the knee and that fit close; it will save chafing. Rub sweet oil before starting on all parts likely to chafe; however hard your condition you will find you are bound to get sore.

Take in your wallets a flask of whisky, a small bottle of chlorodyne, and a little quinine, a tin of cocoa, six small tins of Brand's essence of beef, with pipe and tobacco.

FROM GOVERNMENT CIRCULAR TO SHIPOWNERS AND VETERINARY INSPECTORS.

DISINFECTING STABLES, SHIP HOLDS, ETC.

If you have had glanders or influenza in your stable, or if you have charge of horses on board ship, and the ship has previously carried horses, it is proper to disinfect, Chlorine gas is the best, as it will penetrate every crevice. For a ship's hold two pounds of each ingredient. For a stable a few ounces of each. Put equal parts salt and black oxide of manganese in a strong basin, put the basin in a bucket, in a stable arrange to pull the bucket near the ceiling, in a ship arrange for the bucket to be pulled to top of the hold. On the salt and manganese pour their combined weight of sulphuric acid, and pull bucket up to its place. Be very careful that you keep clear of the gas. Leave upper window open, or hatch open to let the air escape, for the chlorine gas descends and will force the air up and out. In a short time fasten up the air exit and leave for half an hour, ventilate stable or hold well before entering.



CHAPTER III.

Shoeing, and Foot Diseases.

SHOEING.—No. 4 nail means 1,000 nails weigh 4-lbs. No. 5 nail means 1,000 nails weigh 5-lbs. The weight of shoe is guided by the work the horse is meant for. Four oz. too heavy in each shoe entails enormous extra exertion on the horse. In a 15-mile march it is equal to 11 tons moved one yard. Horses go better in their old shoes, because the toe is worn away; therefore a shoe with the toe turned up, as in the Fitzwygram shoe, is to be most strongly commended for all horses, and especially for stumblers, it makes all the difference as to pleasure in riding an Arab; this shoe seated out on the ground surface is the best shoe. The next best is the concave hunting shoe, because it is seated on the ground surface. It has a narrow bearing surface; the sole takes its share of the work, and the concavity prevents snowballing and slipping.

In the ordinary road shoe, as made in England, the seating is above on the upper surface of the shoe. The result is that the sole does not bear its share of the work, dirt and sand lodge in the seating, and the shoe is liable to be sucked off.

Don't allow *opening the heels by cutting*, opening the heels results in their closing and contracting. Don't use short shoes, or you will produce corns. The shoe should fit exactly, projecting nowhere; if it projects behind the heels, it is liable to be cut by the hind foot; if it projects outside the hoof, it is liable to be sucked off in deep ground; and if it projects on the inside, you increase the chances of injuries by brushing. Smiths often put the shoe a little inside the hoof, and then rasp the hoof down to the shoe; this is fitting the foot to the shoe, instead of the shoe to the foot. The result is weakening the crust of the hoof, and ends in liability to sandcrack and inflammation of the coronet.

The weight of the horse is mostly borne by the crust; this crust is thin, and if you rasp it away, you reduce the part intended to bear the horse's weight, and from rasping the outside fibres dry and shrivel. Hot shoeing is good; it would take three minutes to hurt a horse, and it does not take three seconds pressure to see if the shoe fits and the farrier sees where paring is necessary. The charring also actually preserves the foot. Cold shoeing of malleable tough iron is used in the Indian Cavalry, and is found to answer well.

DIRECTIONS TO THE FARRIER.— Open the clinches, and tap and draw the nails, thus removing the old shoe; if the old shoe is torn off after cutting the clinches, horn is liable to be torn off too. With knife reduce length at the toe, and with rasp, rasp down toe and heel to required length, no cutting in the bars or opening heels. The toe grows faster than the heels, and requires more cutting.

Fit the shoe hot, the charring will show where a little more rasping is required. Take off the feather edge of the hoof, cool the shoe, file it up and back pritchel it; the nail holes in shoe must be straight punched. Drive the nails one inch high in front and $\frac{3}{4}$ inch behind. Drive the front nails first, then the heel. Use the toe clip in front and a double clip behind. The going in properly of the nails is arranged for by the pointing of the nail. Take off the points of the nails level and flush with the wall. Tap the clinch into wall of hoof. No cut need be made below, *and the rasp is not required at all now.* Rasping the clinches weakens them.

The nail heads should fit into the hole perfectly, and the neck of the head must fit its hole; there must not be a hollow space round the neck of the nail in the shoe. If you calk one heel thicken the other, to get a level bearing. Calking is only good for carriage horses. Let the hind shoes well back, and see that the under inner edge of the shoe is well rounded off, it prevents injury from over-reaching; this is important.

The toe of hind shoe is square, with rim of crust projecting, which rim is filed off; the under inner edge must be round to avoid injuries from over-reaching.

Tips are very useful instead of shoes, when you want the heels to get strong, and to get frog pressure. In putting on tips, shorten the toe to get a level bearing, and let the heel end of the tip be thin, not letting the tip end in a ridge of iron.

The bar shoe is useful only in disease.

Charlier Shoeing.—Horses lose action, the horse is afraid to lift his feet, but in some cases where the feet are mutilated, contracted, upright, the shoeing is of service, it allows more sole and frog pressure. If is of no use for flat footed horses. In frost use Fleming's frost cogs.

If you have to use leather, only use leather rings between the shoe and hoof.

To Inspect Shoeing.

1. See the foot is properly shortened, remembering the toe grows faster than the heel.

2. See that the shoe is strong enough to last a month, yet not too heavy.

3. See that the clinches are in a line, and level with wall of hoof.

4. Take up the hoof, and see that the heels are open, and look for thrush.

5. Feel round the edge to see the shoe projects nowhere, especially on the inner side.

6. See that there is no sign of rasping on the outside.

7. See that the under inner edge of the toe of the hind shoe is well rounded off to prevent over-reaching, and see that the hind shoe is a little let back; the toe of the hind shoe should be square.

To shoe a violent horse, put on a straight waistcoat, (page 72), with twitch between lip and teeth, which will only act when wanted, and the most violent horse is held quiet, and yet you can lift his feet.

Treatment of Injuries.

BRUSHING.—The hoof strikes the opposite fetlock; it is caused by faulty conformation, *i.e.*, a narrow chest and toes turned out, also by careless shoeing, the clinches up, and by the horse tiring. It occurs behind from deficiency of muscle in the thigh, and from faulty conformation.

Remedy.—Use the brushing shoe that is thickening the inner side, and thus alter the position of the foot, or use a boot or ring. Horses that brush are often quite cured by charlier shoeing, if their feet will stand it. Farriers have a way of what they call shoeing blank on the inside; this is making the inside web of the shoe very narrow, setting it well inside the edge of the foot, and then rasping the foot down level with the shoe. No nails are used on the inside. This will mitigate the brushing, but of course at the expense of the foot, and as the greater weight is on the inside, the injury to the foot is the greater. Don't buy horses that brush, it gives a lot of trouble.

OVER-REACHING.—The heel of the fore foot is struck by the under inside edge of the hind foot: caused by defective conformation, long legs and short back, by galloping in deep ground.

Remedy.—Clean wound, apply lint and tincture of myrrh, and avoid using more moisture than necessary in the dressing. In bad cases, to clean the wound, foment by placing the foot in hot water and apply for one night a linseed poultice in a boot. A good dressing is carbolic oil, strength 1 to 15.

SPEEDY CUTTING.—Striking below the knee by the hoof of the other leg: caused by defective conformation; it is usually done in deep ground at the gallop when the horse is tired.

Remedy.—Hot fomentation, and then for a few days a cold water douche; if abscess forms let it out. A boot can be used to go on the inside of the knee. To detect it when purchasing a horse feel down below the knee for a scar, or heat, or tenderness. Speedy cutting is very dangerous; the horse falls suddenly with great force.

CLICKING, or FORGING.—Inside of the fore shoe tapped by the hind foot. Often cured by riding the horse up to his bit. Sometimes caused by weariness.

Remedy.—Let the hind shoe back well, letting the toe over-ride the ordinary shoe and then round the toe off; use side clips.

VILLITIS is inflammation of the coronary band, the horse is lame with a peculiar gliding step. Foment

and poultice by putting the foot in a boot with hot bran and give rest. Inflammation of the coronary band is induced by rasping the crust.

SANDCRACK comes on the inner quarter of the fore foot and the toe of hind foot: caused by weak secretion of horn at the coronet, also by injudicious use of the farrier's rasp. A remote cause is shoeing with shoes seated on upper surface, thus throwing all the strain on the fibres of the hoof, and not letting the sole do its share of the work.

Treatment.—Apply a shoe that will take all bearing off the part, ease off the hoof under the crack. With firing iron cut a burn deepish across the crack below, and when it has grown down from the coronet, burn another cut above it, thus preventing it from extending. Blister the coronet over the crack to promote growth of horn. Tar the crack, and in slight cases strap leather round the hoof and coronet. In a bad case, causing lameness, the crack opens and shuts, catching the laminæ. Remove shoe, rasp down a little horn, poultice and foment for three days, and with a sharp knife pare away the horn on each side of the crack, put on a bar shoe eased off under the crack, put on tar dressing, strap the foot, and blister round the coronet. Burn the deep cut across and below the sandcrack. In hind foot it is easy, and in the fore foot possible to pin the crack. Make a hole with a bradawl a quarter of an inch deep, and pin the crack with a nail driven sideways, clinching it, taking care not to run the nail into the sensitive laminæ. A farrier had better do this or clamp the sandcrack by cutting a groove on either side and putting on a clamp, pinch it close to prevent any opening. Shoeing in tips is very good for sandcrack.

THRUSH is a disease of the frog caused by dirt and wet. It is a rotting of the horny substance of the frog, commencing in the cleft. The smell of a thrushy frog is peculiar and bad. In a slight case wipe out the cleft with cotton wool, driving it well in and out with the hoof pick; then lay a thick sprinkling of burnt alum on the cleft, and with some dry cotton wool push it well up. Or equal parts of calomel and burnt alum for a worse

case, for two or three dressings. Each dressing may stay in 12 hours, then continue with the burnt alum alone. After the cleft is cleaned, tar on cotton wool or tow pushed well up, is also a common remedy, but not so good as burnt alum, which is very cleansing, and dries up the discharge. If the thrush is established, and does not yield to the above, the hind shoes must come off and the frogs allowed to come on the ground, so as to get pressure.

The frogs are meant by nature to do their share of work; they are buffers to the foot, and if by high calkins and thick heels they are not allowed to do their work, they get liable to disease.

Thrush is more common in the hind feet, as the dirt of the stall is greater there, and also to the hind shoes having calkins. Neglected thrushes go on to canker of the foot.

Thrush is sometimes the safety valve of an overfed system; if the discharge is stopped too suddenly, and the legs fill, give a dose of medicine. Reduce the corn.

CRACKED HEELS are the result of washing the legs and not drying them; the dust and sand of the roads lodging on a wet heel will produce cracked heels. Overfeeding producing a heated state of the system will predispose. Don't wash legs and heels, only wash out the roofs, and be always most careful in drying.

If you only leave the hair on your horse's heels, and when he comes in dirty do *not* wash the legs, but let the mud dry on, and then brush it off, you will never get cracked heels.

Remedy.—Clean out the sores and cracks thoroughly by poultice for one night, and don't wet them afterwards. Apply carbolic oil, one part carbolic acid to twenty parts sweet oil. Put the horse on laxative cooling diet if he is feverish with the fetlocks puffy. Laxative diet is bran mashes, lucerne grass, carrots, mangold wurzel, green food, etc. Don't give corn till the swelling of fetlocks has gone down.

WOUNDED TENDONS.—Cold water douche, and if any thickening remains, use blister, one part biniodide of mercury to twelve parts of lard.

PUNCTURED FOOT.—Nail wrongly driven touches the sole or sensitive frog. Place hand on foot to examine temperature, take out the nails one by one; if you find moisture on any one, that is the one in fault.

Remedy.—Probe hole, and cut well home, letting the matter out, put horse on half bran and oats, put horse's foot in hot water and poultice with bran. When pain subsides shoe lightly with four nails and use leather.

Injuries from other things, glass, &c., remove cause, give exit to matter, and poultice. Use disinfectant on the poultice, say carbolic 1-20, and inject in wound.

CORNS.—Often caused by shoes being too short. Caused by undue pressure, remove the pressure; treat the cause that produced the corn. Don't buy a horse that is subject to corns, they are very troublesome. With suppurating corns, open it out and poultice. For corn use a shoe that is so narrow in the web at the inner heel, that it rests only on the crust, just a rim of iron $\frac{1}{4}$ -inch wide at the part. Pare out seat of corn very slightly. Much paring is very injurious, it admits dirt and causes suppuration.

QUITTOR is a fistulous wound on any part of the coronet, may occur from a suppurating corn, also from a severe tread and over-reach, also from blows and wounds. It is a disease with sinus and sinuses; rasp the crust thin below the coronet.

Treatment.—Make a seton and draw it backwards and forwards: this with one sinus. But when many sinuses form, poultice for a few days, pass a probe down to find out where the sinuses run, and cut them all into one wound with a bistouree; insert in the wound a red hot probe, and when the parts are healing, blister the coronet. Always get a depending orifice to the wound you make.

FALSE QUARTER is a longitudinal depression on the inside quarter of the fore foot, it differs from sand-crack as it is broad at the base; the horn in the fissure is not true horn.

No successful treatment, get sole and frog pressure.

SEEDY TOE is a separation between the true wall and the horny laminæ filled up with cheesy excrement, produced by undue strain, such as the pressure of a badly

turned up clip. You see on taking off the shoe an orifice ; shorten the foot with a rasp, scrape out the cheesy horn, fill the hole up with tar and beeswax, and it will soon grow out. Also caused by laminitis.

Bad case.—Cut it out altogether from the outside down to the cheesy matter, scrape this out, poultice and apply a large clip to cover the wound ; blister the coronet to produce quick growth of horn.

FOUNDER, or inflammation in the feet, extends to the whole sensitive sole and pedal bones. Horses with weak flat feet are specially liable to it. It is acute and chronic. In the acute stage the inflammation in the hoof causes intense pain. It occurs generally in both fore feet.

The hoof of a horse that has suffered from founder is ringy.

To diagnose a case quickly, push the horse backwards a few steps, when it will be at once seen that he elevates the toes, and throws the weight on the heels. Tap the front of the foot and the pain is intense.

Causes.—Overfeeding, overdose of aloes, concussion, long and fast trotting on hard roads after a period of doing nothing, long confinement on board ship, unless the feet are kept cool by water.

When a horse is tired after a journey extra oats are a great mistake ; they irritate the stomach, and may cause inflammation in the feet. Much better give gruel till the horse is rested.

If you give beans after a journey, you give a horse inflammation in the feet.

The horse protrudes his fore feet and brings the hind feet under the body, taking the weight off the fore feet. The feet are hot, and the plantar arteries throbbing. Take off the shoes and put the horse in slings, shorten the toes ; don't give aloes, but give linseed oil $1\frac{1}{2}$ pints ; don't apply hot water, but cold water from a hose ; don't bleed from the toes, keep up cold by ice bags and rapid evaporation. When a little better, put on light shoes, using broad web bar shoes and make the horse walk on soft ground however great the pain ; on recovery blister the coronet. Feed on green food, carrots and bran.

CHRONIC LAMINITIS.—Fear dropping of the pedal bone. Horse goes on heels, the sole gets convex. There is no cure.

Let the sole grow thick, apply a broad seated shoe with seven nails, and leather pad under the sole, and blister the coronet. The horn of the hoof gets ringy.

Mr. Broad writes, that in a very bad case, even if the pedal bones have come through, as soon as you can, get a little protection over the sole, using broad web bar shoes with thin heels; in time take off the shoes, keep the feet rasped short, and turn the horse into very wet pastures. Attend to the feet, keeping them short, and in six to twelve months the feet will be restored sound.

NAVICULAR DISEASE is disease of the bone or joint in the foot. In nine cases out of ten the disease commences on the surface of the bone where the tendon passes over it. It occurs mostly to horses working on the roads. Navicular is hereditary. Upright, blocky, contracted feet get it. Short, upright pasterns predispose. Calkins often bring on the disease by displacing the proper position of the foot. Hard work after rest may cause it. Thick-heeled fore shoes often cause it.

The horse points his foot to avoid pressure on the heels. The disease comes on insidiously, the horse gradually begins to point his toe; then you notice he is not quite sound; on looking at the foot it looks smaller, and is smaller than the other. The horse goes worse down hill: he potters like a cat on hot bricks, but there is not much heat in the foot. The foot becomes more upright as the disease advances.

Treatment.—Take off the shoes, foment and poultice. rasp down the heels to let them come on the ground, and let the horse stand in wet clay for three weeks; gradually bring on to work, using charlier shoes to give frog pressure. On leaving the clay sharply blister the coronet, and pass a frog seton. Neurotomy, or dividing the nerve, will prevent feeling in the foot, and perhaps enable the horse to work. After neurotomy the horse must be put gradually to work.

SIDE BONES.—The cartilages at the heel from concussion turn to bone; blister or fire, and give two

months' rest, letting the heels come on the ground. Shoe in leather, and the horse will probably do lots of slow work in a light cart or in double harness. Ossidine is better than blistering.

WIND GALLS.—Light blistering repeated and rest will remove them, but they return on work; cold applications and tight bandaging will also help greatly. The predisposition is hereditary.

NOTES ON FEET.—So many horses go wrong in their feet that attention is invited to the following remarks. All horses, in England, pass much of their early days in the fields, and their feet get used to moisture. When these horses lead a different life, in stables, with high feeding, and pounding on hard roads, no wonder the laminæ of the feet get inflamed.

The Vets will tell you to send your horse to grass after their feet have gone wrong; but if these feet got a daily two hours' fresh water bath, one hour before and always one hour after work, the tenderness and contraction would probably never commence, and the owner will save the bother of having to try and repair the feet afterwards.

This is done nicely if you have spare stalls, and the horse can stand in wet clay while feeding, or use wet swabs on the feet for three hours a day. The feet must have moisture in hot dry summer weather, in wet weather they do not need this.

“Blunt Spurs” says:—

Tar the frog, which bring to the ground,

Remember now to touch it;

Allow no stupid know-all goose

To take his knife and cut it.

But, lower the heel, shorten the toe,

Keep the foot in moisture and soak it;

And then you'll get frog width I'll bet,

Put that in your pipe and smoke it.

CHAPTER IV.

Diseases and Injuries.

No groom to use any medicine or drug without orders.

DISEASES.—There is the exciting cause that gives the disease, *i.e.*, a draught of cold wind on a heated horse will give him a cold. There is the predisposing cause, *i.e.*, faulty conformation; thus a narrow badly ribbed horse is predisposed to scour. A too straightly dropped hind leg is more likely to become spavined.

THE FIRST SIGN.—When a horse is off his feed it should be reported at once. It may be due to the quality of the forage, or a horse may stand next a horse that is worrying him; horses have their friendships and dislikes amongst each other. A piece of soap or grease may be left in the manger. A tight head collar; A sharp-edged tooth; Lampas.

Watch the dung daily; in health it falls in large balls, in sickness it is sometimes in small balls, hard, and with slime. Slime may be caused by worms, or enteritis may be coming on, at any rate there is irritation; give at once $1\frac{1}{2}$ pints of linseed oil.

Soft dung, like cow dung, often comes from over-feeding on too heating food. Give a few mashes and lower the amount of corn. Give half oats, half bran.

A great deal can be done by altering a horse's food without rushing into physic.

CATARRH.—Horses brought into hot stables from the cold air outside will catch cold. Horses taken up from grass catch cold on first being shut up in the stable. Horses getting a chill from draughts catch cold. It seems curious that a horse can go out of a stable into the cold air and not catch cold: while the reverse, the coming suddenly into a hot stable, congests the lungs.

Symptoms.—The horse hangs his head, coat stares, legs and ears cold, watery discharge from the nostrils, may or may not cough, and the horse is off his feed.

Treatment.—Isolate the horse, give a loose box, cool but not cold, no draughts, a warm rug not buckled too tight, and bandage the legs. Steam the nostrils, put hay in a bucket, and pour on boiling water, holding the horse's head over it, putting a cloth round to keep in the steam. Sprinkle a little chloric ether, say $\frac{1}{2}$ oz., on hay while steaming. Give only sloppy diet, soft bran, and linseed mashes, carrots, &c., lucerne grass. In catarrh and lung disease never give aloes; give $1\frac{1}{2}$ drachms of carbonate of ammonia, $1\frac{1}{2}$ drachms of nitre, and $1\frac{1}{2}$ drachms of gentian, twice a day, if there is no sore throat; the carbonate of ammonia irritates a sore throat.

SORE THROAT.—Foment the throat, and rub in the compound liniment of ammonia, put on a head piece; sloppy food, carrots, &c.

LARYNGITIS.—Painful cough and difficulty in swallowing, always more or less fever, cold extremities, eyeballs always more or less injected, ditto the nostrils, the glands swell.

Treatment.—Loose box, bandage the legs and warm clothing, but don't give him a hot stable. If the horse will eat give soft mashes; remove all sour mashes from the manger, give raw carrots finely sliced, and feed from the hand. Constantly foment the throat, then a sweating bandage, and a half hood; after two days rub in ammonia liniment, *i.e.*, half pint of soap liniment, 1 drachm of strong liquor ammonia; steam the head with boiling water poured on hay in a bucket, sprinkle $\frac{1}{2}$ oz. of chloric ether. Don't give medicines at first, but you may put 1 drachm of belladonna between the lips (rub it on back teeth), it will soothe without lowering the system; do this twice in the day. When the sore throat has abated give 2 drachms of carbonate of ammonia, ditto nitre, ditto gentian. Let the horse look out of the loose box. As he gets on give $1\frac{1}{2}$ drachms of sulphate of iron, with 1 drachm of gentian, gradually bringing horse on to work and feeding.

COUGH.—In coughs or any cold, 5-lbs. of bamboo leaves a day will help greatly in India. Put morning and evening 1 drachm each of belladonna and camphor

on horse's tongue ; feed on bran and linseed mash and green food.

Till four years old and at four years old the colt often gets a cough from teething. The teething cough is more violent in the morning, and is continuous.

In chronic cough, the result of catarrh, iodide of potassium is very useful ; 1 drachm twice a day for a fortnight, and give green food, mash, and above all carrots. Carrots have a marked influence in all cases of cough, and affections like broken wind.

With cough and sore throat avoid dry forage ; broken wind is sometimes caused by dusty hay. If you must give hay damp it, if possible with molasses and water.

STRANGLES are inflammation of the glands between the jaws ; the glands swell, the horse's head remains fixed, the appetite impaired.

Remedy.—Encourage the formation of the abscess, feed on half bran and oats, and keep up the strength ; foment and apply one or two bran poultices, but don't keep them on at night, as they are bound to work loose. In putting on a poultice to the throat use an eight-tailed bandage. When the abscess pits well, lance it at the most depending point, foment, and keep the hole open with tow, steam the nostrils, keep on half-and-half diet, and towards recovery give iron. Half a drachm of sulphate of iron and 1 drachm of gentian or chiretta. Put hood on when bandage is removed.

GLANDERS and FARCY.—I merely mention these diseases to describe the appearance and symptoms.

Glanders.—Look into the nostrils—they should look pink or bluish red, and covered with minute specks of water, no ulcers or abrasions ; if there is a discharge thin or thick it may be a cold, but if it is thick, adhesive, and sinks in water it is probably glanders. If also the glands are enlarged and adhering to the jaw instead of being moveable, and there are ulcers with ragged edges, and the discharge mostly from one nostril, membrane lead colour, the horse has glanders. Glanders are very dangerous to man.

In farcy there is swelling and tumefaction of the hind legs, and cording of the lymphatic glands on the

inside of the thighs ; the farcy buds burst and ulcers form. The neck sometimes cords and the head gets swollen.

Isolate the horse at once on suspicion, and if you make out the disease shoot him and bury in quicklime.

ROARING AND WHISTLING.—The space between the lower jaws cannot be too wide, for the top of the windpipe ends in the larynx ; this is larger than the windpipe. It is called in man “Adam’s apple.” When the nose is kept pulled in by a tight bearing rein, this larynx is damaged ; the result is thickening and roaring. A tight throat lash causes roaring, when the neck bends it tightens more and presses on the larynx. It is a most delicately organised part this larynx ; in strangles, an abscess takes place between the jaws, and close to this larynx, and there is great inflammation if it lasts unduly long, the inflammation produces thickening and diminution in size, and the result is roaring, which is incurable. Always keep throat lash loose, four fingers from the neck.

BROKEN WIND is a rupture of the air cells in the lungs ; so the air inflates the pleura or lining covering. It is caused by sudden exertion on a full stomach, as well as by dusty food. There is a double inspiration, and a short cough, and a disposition to expel wind from the fundament.

The disease cannot be cured but only palliated by careful dieting. Concentrated food, little hay, no straw chaff, and damp all forage.

THICK WIND.—The horse is not fit for so much exertion as in a broken winded one, it is caused by chronic attacks of inflammation of the lungs.

Colic.

SPASMODIC COLIC.—Caused by irritation, chills, injudicious watering and feeding, especially when the horse is exhausted. Some horses have weak stomachs and continually get colic.

Sudden pain, horse looks at and kicks at his stomach, lies down and rolls, and gets up quite well for a short time. The pain again comes on more intense or less intense, till the animal dies from exhaustion or in the

other case recovers. Rubbing the stomach soothes the horse. If the body continues wet with sweat the case is very serious. The legs and ears remain warm.

As a dose of aloes is not safe, give as advised in Captain Haye's work.

Tincture of opium 1 ounce.

Turpentine 2 ounces.

Linseed Oil $1\frac{1}{2}$ pints.

or if this is not at hand give a quart of warm beer with two glasses of spirits and a tablespoonful of powdered ginger; if this is not successful don't repeat it, but get the linseed oil.

Don't distress the horse by exercise, but keep him quiet, administer one or two enemas of warm water, foment the stomach, and hand rub. If there is intense pain give 2 ozs. of tincture of opium in a pint of water, or 3 drachms of camphor in a ball. Don't continue giving the opiate, once is quite enough after the linseed oil, and even this is not necessary unless the pain is excessive. Camphor is better than opium—afterwards great care in diet. Camphor 2 drachms in oil very soothing.

FLATULENT COLIC is the result of gas forming in the stomach and distending it. Causes:—Feeding on green grass in quantities; watering after feeding; working soon after a heavy feed; steeping the corn before giving it, so long, that it actually ferments. The stomach is greatly distended, the other symptoms are like spasmodic colic, but less violent. Give

Tincture of opium 1 ounce.

Turpentine 2 ounces.

Linseed Oil 12 ounces.

Foment and give an enema of hot water, or give, as most strongly recommended, 2 drachms of carbolic acid in a pint of oil. Hand rub the stomach. In a very bad case puncture the intestine. Instruments, a trocar and cannula. Very little risk attends the operation; the puncture should be made if the horse is bad; don't delay till he gets exhausted, or he may choke and the stomach get ruptured. Best place: the right flank at a spot equidistant from the hip and the last rib, and the side processes of the vertebræ of the loins.

If first puncture does not succeed repeat it. The left side may also be punctured, but the right side is better. Take the opportunity when the horse is laying down. Take care the horse does not hurt himself while the puncture is being made. The operation is simple, make an incision in the skin, pulling the skin down slightly so that when released it covers the wound. Place the instrument on the cut and strike it with the palm of the other hand, driving it well home. Press the cannula home, so that it may penetrate the intestine; if gas suddenly stops, mop out the cannula with a small stem, but not with the trocar. Ten minutes is long enough to let the instrument remain in. Don't inject medicines through the cannula. On recovery great care in diet.

INFLAMMATION OF THE INTESTINES.—

A very dangerous disease, sometimes the sequel of colic; also caused by over fatigue and chills. Laminitis often follows enteritis.

Eyes and nostrils red, expression anxious, pain continuous; rubbing stomach increases the pain. In the early stage the horse lies down gently and only pretends to kick at his stomach, breathing hard and hurried, body bathed in sweat at times, legs and ears cold, pulse quick and wiry; then follows delirium till the intestine mortifies, when suddenly he becomes quiet, but the pulse is almost gone, and he dies exhausted. Compare with symptoms of colic.

Treatment.—Don't give purgatives of any sort, give sedatives. $\frac{3}{4}$ oz. of extract of belladonna, $\frac{3}{4}$ oz. of opium, or 6 ozs. of the tincture of opium. Foment the stomach. During convalescence great care in feeding. Small bran and linseed mashes with a few scalded carrots. Avoid giving dry food.

LIVER DISEASE. — More common among Australians in India. Causes.—Want of exercise, want of green food, exposure to the sun, too high feeding, want of ventilation in the stable.

Signs.—Yellow membranes, offensive dung of a clay colour, pain shown by a horse pointing to his side, quick pulse and breathing.

Give only bran mashes, and green grass and plenty of water. Give 8 ozs. of sulphate of magnesia at once in 3 pints of water, and $1\frac{1}{2}$ drachms of ipecacuanha twice a day for one week, and 1 oz. of sweet spirits of nitre daily; then 2 ozs. daily of bicarbonate of soda in his food for one week.

FEVER.—Caused by high feeding and want of exercise, exposure to the sun and imperfect ventilation in stables, chills. The blood is loaded with impurities, the horse is dull, no appetite, skin is hot and dry, the head hot, pulse is quick and the breathing fast.

Treatment.—Put on mashes and green food, have free ventilation in the stable or remove the horse to some airy place, but protect him from the sun. Sponge the coat with vinegar and water. If the horse is gross, and the fever is from over feeding, give physic, say $3\frac{1}{2}$ drachms of aloes after a day's preparation for a cob, 4 drachms for 15-2 horses. If the fever is not from high feeding give sweet spirits of nitre 1 oz., or

Sweet spirits of nitre $\frac{1}{2}$ ounce.

Nitre 1 drachm.

Carbonate of ammonia $\frac{1}{2}$ drachm.

If you cannot get these medicines give $\frac{3}{4}$ oz. of nitre daily in his food. When the attack is over, say in two or three days, give liberal feeding and 2 quarts of beer a day, and 1 drachm of sulphate of iron or 2 ozs. of chiretta a day.

In malarious fever $\frac{1}{2}$ oz. of quinine twice a day for two days, or $1\frac{1}{2}$ drachms of carbolic acid in $\frac{1}{2}$ pint of linseed oil twice a day for three days. With quinine give 4 ozs. a day of Epsom salts.

WORMS.—Round worms like earth worms; these, if present, cause great irritation, and the horse falls into bad condition, with coat staring and belly falling. Give $1\frac{1}{2}$ drachms each of tartar emetic and sulphate of iron for a week, and then a dose of aloes. Though this may weaken the horse a little, it clears out the worms. In bad cases repeat this, and complete the cure by 1 oz. of chiretta or 1 drachm of sulphate of iron in his food, for one fortnight. The best preventive is the continual use of

salt in the food. Or for round worms give 3 ozs. of turpentine in a pint of linseed oil; this is a quicker plan than the other. Turpentine must be given in oil, and given for worms in full doses; in small doses it is a diuretic. Only give it once. Or in India give 6 seeds of palas papra daily for one week, and then a dose of $3\frac{1}{2}$ drachms of aloes.

Thread worms are smaller, about one inch long, and are found in the rectum; they do not disturb the horse's health, but they irritate him and make him rub his tail. The eggs of the worms, as a yellow substance, will be seen adhering to the skin below the anus. For thread worms give an enema of warm water, and then an enema of 6 ozs. of oil of turpentine in a quart of linseed oil.

DIARRHŒA. — Slack loined washy horses are inclined to scour. Scouring may come from overfeeding on corn. A few bran mashes settles this, and then lower the amount of corn. One lb. of dry bran in each feed has a binding effect. Give hay before corn. Make horse eat his corn from a trough or sheet on the ground.

If the case goes on to diarrhœa, and you think it comes from improper food, and if you cannot stop it by the above simple arrangements, give 1 pint of linseed oil, and attend to the diet as before, and put 2 ozs. of bicarbonate of soda in his food daily. If the case still does not yield, give 1 drachm of powdered opium, 2 drachms of powdered catechu, 4 drachms of chalk, treacle enough to make a ball. Give port wine and water, spirits and water, or 1 oz. dose of sweet spirits of nitre if horse is very weak. Don't check diarrhœa suddenly.

PRURIGO is a non-parasitic disease of the skin; it is general over the body, and is caused by checked perspiration, irritation from clothing, a heated state of the blood from overfeeding. It is more common in hot weather.

Give linseed mashes and linseed oil, and give $1\frac{1}{2}$ drachms of tartar emetic once a day for 10 days. Wash the horse with warm water and carbolic soap, and then lightly brush him over with diluted paraffin oil. Vinegar and water is a nice clean application.

LAMPAS is a swelling of the palate behind the upper incisor teeth. Caused by chills and indigestion, horse cannot eat; lance the gum and lower corn, giving bran mash and 1 oz. bicarbonate soda for 2 days.

SURFEIT.—Small lumps break out suddenly, generally on the neck, loins, and quarters, and these lumps sometimes turn to scabs and the hair comes off. Cause.—Acidity of the stomach and indigestion. Give linseed mashes, etc., a mild dose of physic, and 1 oz. of bicarbonate of soda twice a day. In bad case, give tartar emetic, $1\frac{1}{2}$ drachms a day.

MANGE.—The first kind is not very catching, as the mange insect is stationary or nearly so, and is more curable as it is more on the surface; it commences usually in the roots of mane and tail. The skin gets bare and scabby in patches, which remain moist from a continual discharge of fluid. This is the only kind found in England.

The second kind of mange insect lives deeper down in the skin; these also begin usually in the mane and tail, but spread very rapidly all over the body. The skin is covered with tiny hard lumps, which can be picked off, and below is left a hairless red patch of skin. By degrees the whole body gets bare, and the skin gets wrinkled and dry, thus differing from the first sort of mange. This form is very contagious. The better cared for the horse, the less chance for the mange insect, though any horse may catch mange.

Dip all saddlery, harness, and clothing into boiling water; wash out the stable with hot water, and brush it over with pure carbolic acid. Give the horse a light dose of physic, say $1\frac{1}{2}$ pints of linseed oil, and feed on linseed mashes every second night; give a claret glass of linseed oil every day for 10 days. But the mange insect must also be treated locally. Apply paraffin oil all over the body once a day for a fortnight; let it dry on in the sun. Half paraffin, half water.

PARAFFIN oil is very liable to blister the skin if used too freely. Horses taken up from grass often have lice. Take for mange or lice $\frac{1}{2}$ oz. of carbolic acid and 1 pint of water and paint all over; let it dry and wash off after 48 hours.

BURSATEE is an Indian skin disease. It consists of hard edged, circular sores, often of large size, mostly on the fore part of the horse, the fetlocks, face, chest, and lips. The peculiarity of the sore is, that hard red or yellow particles are found in it, some even as large as a pea. These particles are found in the internal organs of a bursatee affected horse.

Cause.—Irritation of the skin, dirt, bites of insects, and climatic influence. It is common on the plains in India during the rains. Horses well looked after don't get it. Bursatee is a re-current disease, and so a horse with bursatee sores is unsound.

Treatment.—Apply pure carbolic acid to the ulcers, then dress daily with carbolic acid 1 oz., resin 2 ozs., camphor 5 ozs., methylated spirits of wine 15 ozs.; or dust on equal parts of burnt alum and fined charcoal. Diet: give the horse lots of linseed mashes and green food, and 2 ozs. daily of bicarbonate of soda, and look after the stable management. Don't use nose bags.

WARTS.—The position will indicate the means for removal. If in an easily got at place, cut it out and burn the place with a firing iron; on the lips and eyelids carefully apply vinegar several times a day.

SIMPLE OPHTHALMIA.—Usually from blows or irritation of the eyes, sometimes after catarrh. The groom may poke the brush into the horse's eye. The eye looks as if it had received a blow, the eye waters a great deal, the haw projects and the horse cannot stand light. The conjunctiva is much inflamed. The cornea is clouded, of a superficial character and of a bluish colour.

Remove any foreign body in the eye, give dose of physic and laxative food. Keep horse in the dark; smear belladonna round the eyelids. In bad case apply a seton below the eye on the cheek.

SPECIFIC OPHTHALMIA.—It is a re-current disease, each attack lasting about 10 days and recurs in three weeks to three months; in many cases one eye only suffers, in many the other eye takes its turn. Often caused by ammonia in straw litter.

There is nothing which requires so much attention from the purchaser as the perfect transparency of the cornea over the whole of its surface. Look through the eye from behind and below. The horse should not be in the open, but standing just inside the stable door.

If there is a thickening of the lids, or a puckering towards the inner corner of the upper eyelid, a difference in the size of the eyes, a cloudiness although scarce perceptible, or a hazy circle round the edge, a gloominess of the eye, and a dulness of the iris with the surface of the corpora nigra ragged, a minute faint dusky spot in the centre—we may rest assured inflammation has occurred, and there is every probability of its return.

Treatment as for simple ophthalmia.

The end is cataract.

To examine the eye for cataract, take the horse into a dark stable and examine the eye by the light of a candle.

When the candle is thus moved before the fully expanded pupil three images of it should be seen.

The first moves up and down as the candle moves.

The second the same.

The third an inverted image moving down as the candle moves up.

In lenticular cataract, the third image is very indistinct and in its latter stage invisible.

In capsular cataract only the front image is visible.

BLOODY URINE is common enough in India. It is caused by over-heating food, or by over work; by standing in the sun. Put the horse on cooling food, such as mashes, lucerne grass, carrots, etc. Linseed is better than bran in this case. Give $\frac{1}{2}$ oz. of nitre daily.

PROFUSE STALING. — Cause. — Improper food and bad hay, such as over-heated hay, musty hay; also over use of diuretics, too much boiled food. Change the diet, give linseed tea instead of water. Give mild dose of physic. In bad case give 1 drachm of iodine every day for a week, always after food.

GIVING PHYSIC.—Give bran mashes for at least one day before and the usual hay, restricting even this a little the last feed before. Give physic on an empty stomach in the morning, immediately after give a bran

mash, let the horse go to exercise and water on his return; give as much water as the horse likes then. If he refuses bran mash give plain bran, but no corn and but little hay. Physic should operate in 24 hours. While the physic is working leave the horse in the stable. The aloes must be pure and good. If the horse is well prepared $3\frac{1}{2}$ drachms is a dose for a cob, ditto $4\frac{1}{2}$ drachms for a 15-2 horse. Always give 2 drachms of ginger with the aloes; never physic in lung diseases.

OVER PURGING.—Causes.—Too strong a purgative, giving a second before the first has worked, exercising a horse in physic, administering physic without preparation, allowing him to drink water directly after he gets physic, giving physic on an empty stomach and then keeping without food.

Symptoms.—Frequent purging and loss of appetite, debility, weak pulse; when dangerous the breath gets bad and the stomach swells, while purging ceases. Laminitis often follows.

Give thin gruel made of rice and keep horse quiet. Don't give linseed or carrots. If the horse gets worse give 2 ozs. of tincture of opium in a quart of rice water. In two hours repeat this combined with $1\frac{1}{2}$ ozs. of sweet spirits of nitre. If the horse is weak give a bottle of port wine. If opium is not at hand give camphor in 2 drachm doses. In super purgation give a little bruised oats and dry bran to eat with some good hay; don't give bran mash. To drink, give rice water; macerate boiled rice in hot water and boil again. If the abdomen swells, give 2 ozs. of turpentine in a pint of gruel. In convalescence keep the horse very quiet, and bring him gradually on to usual food.

TO GIVE A DRENCH.—Raise the horse's head by means of a loop of cord inserted in the mouth, and raised by the aid of the stable fork, or better still by a staff. This is done by the assistant. Don't raise the head too high. The man giving the drench stands on the off side, and putting the mouth of the bottle in, just in front of the back teeth, pours in about two wine glassfuls at a time. If the horse coughs lower the head at once; don't pull out the tongue. The neck of the bottle is usually covered with leather.

TO GIVE A BALL.—Hold it in the right hand; made small; pull out the horse's tongue with the left hand, and place it on the right side of the jaw, the right hand then is inserted in the mouth, and leaves the ball at the root of the tongue; withdraw the right hand, and loose the tongue, and watch the left side of the horse's neck; give any small thing he likes, for him to eat, it makes the horse swallow the ball quicker. An assistant may stand on the near side, and hold horse's mouth open, it saves the giver's hand from being scratched.

TO FOMENT.—Never have the water too hot. It requires for the foot a stable bucket in which the foot is placed, adding hot water gently as required.

To foment sinews requires two men. Get ready first. A bucket with hot water, more hot water ready to add, bucket with hot poppy water, spongeopiline cut ready to fit, and dry flannel bandages.

Hot poppy water is half a gallon of water in which 12 poppy heads or 1 oz. of opium has been boiled. Commence by fomenting the leg with a hot wet cloth, one man applies a cloth, the other gets the next cloth ready. Spongeopiline is very useful for this.

When this has gone on for a good 15 minutes, replace the last wet cloth or spongeopiline by one that comes from the hot poppy water, and laying it smooth, *quickly* apply the dry flannel bandage, not tight, as strained legs are likely to fill.

To foment the stomach use two blankets and don't let the horse get a chill in the interval of applying, afterwards apply soap liniment.

BLISTERING.—Don't blister on inflammation or you will add fuel to the fire. Before a heavy blister give a ball to clean the system, and cool it. Only blister on the part needful.

Keep the horse's teeth from the blistered part for some days—say three days tied up and three days with a cradle on.

In all blistering first smear lard below the part to be blistered to prevent the blistering ointment running down; this is especially necessary near the heels.

Blistered surfaces should be fomented after 48 hours with very hot water to wash off the gluey discharge, or it will blemish. Repeat daily and rub on sweet oil.

Continued light blistering is often more effectual than one heavy blister. Attend to the washing off of the discharge. A heavy blister is 1 biniodide of mercury to 8 of lard; light blister is 1 biniodide of mercury to 12 of lard.

For deep-seated injuries a seton is better than a blister.

Three days after blistering, commence giving iodide of potassium 2 drachms morning and evening in the water to assist the absorption. Iodide of potassium is lowering to the system, and tends to bring on running at the nose and eyes; when this occurs stop the medicine and continue with smaller dose. It induces absorption and thins the blood.

To get down old synovial enlargements use oleate of mercury 10 per cent. strength with morphia 2 grains to the drachm. With a paint brush paint a little on, say 20 drops morning and evening for five or six days. Don't use too much and don't rub it on, or it may blister.

This preparation, the President, Veterinary College, Edinburgh, states may be used even when a little inflammation is present.

Bone Diseases.

SPLINT is a bony enlargement on the small metacarpal bone below the knee, on the inside, but it may occur anywhere on the cannon bone. In the first case it is serious; in the second it does not matter much after it has once formed, provided it does not extend back to the sinews. Cause.—Horse not being up to the weight carried; in young horses from too early hard work, by concussion, from straight shoulders and pasterns. Splints are often caused by the outside of the shoe being higher than the inside, thus throwing all the weight on the inside. The horse gets suddenly lame, with heat at the place. When a horse is lame with a coming splint, put him on low diet, and foment. When the heat is gone put on a slight blister, and keep putting it on, and it will probably take off the enlargement. Keep the skin rough. Coles' ossidine often cures.

If the horse is not lame don't bother with the splint ; if he is very lame periosteotomy often affords relief.

Cast the horse and get the leg properly secured. Make a small opening below the splint, introduce the periosteotomy knife, pass it up under the skin, turn the cutting edge and sever the skin lining the bone. Make a small opening above the splint and pass a small seton ; don't operate near the knee.

SPAVIN is a bony enlargement on the inner inferior portion of the hock joint ; it is the union of the different bones. The cuneiform bones glide on each other, and in spavin these get locked. To find spavin, sponge the hock, and look between the fore legs, and see if there is any difference between the hocks. There are ridges on a good hock, to which the tendons are attached ; these must not be mistaken for spavin. Hocks should be big and bony. In turning in the stall he catches up the spavined hock quickly. The toe of the lame leg is more worn. Spavin affects mostly straight hocks, cow hocks and weak hocks ; it is hereditary. Take off the hind shoes, and give rest, and a course of blisters to hasten the formation ; or fire him. In firing it is a good plan to fire by eight or ten dabs of a hot iron, round at the top, right on to the place. This is better than feather firing, as it leaves less mark. The iron should be of a dull red heat. Horses with formed spavins can do lots of work, though the joint is stiff the horse is not lame. The further back the spavins the better for the horse. Try ossidine. Spavins are often caused by the outside of the shoe, by calkins, etc., being higher than the inside, thus throwing weight on the inside.

OSSIFIED FETLOCKS is the result of continued strain of the fetlock joint and tendons. When the hardening and inflammation have subsided, the horse often does lots of slow work, cab work, etc. This is not a disease so much as the result of a long course of over-work and battering of the feet and legs. The lump thrown out is often very large. If the horse is not lame no treatment is required ; if he is lame, long rest and perhaps firing. In this case feather firing in lines, in distinction to the puncture firing recommended for spavin.

I don't mention blistering, as, if you buy a screw with ossified fetlocks, the time for that treatment is passed.

RING-BONE is an exostosis, resulting from inflammation on the upper and lower pastern bones. It is not of so much consequence when on the upper bone; but on the lower bone it is often very serious, owing to the unyielding nature of the crust of the hoof. A swelling is noticed usually on both sides of the pastern bone, which has a tendency to spread; if it spreads to the rear, the lameness is incurable, it more often goes round to the front. In the fore feet it is often caused by concussion; in the hind feet by strain. The horse sometimes is lame before any swelling is visible, the inflammation is on the bone itself. When lame before, the horse goes on its heel, when lame behind, the horse puts the toe down first. The heat is round the coronet and not in the hoof as in laminitis. Ring-bone is hereditary.

Treatment.—If the horse goes on his heels use shoes thicker in front than behind, throwing him on his heels; if he goes on the toe use a high heeled shoe, rest the feet by helping the horse to do what he wants to do. Of course the horse does no work until the inflammation is quite gone, and gradually make the shoes as usual. Apply a blister to hasten the bony union of the joint. Two months rest. Try ossidine.

Paralysis of the Loins.

KUMREE is almost incurable. I believe there are three kinds of paralysis of the loins: 1st, the Kumree of Burmah, which I believe is a microbe, originating in the dirty and often putrid water in which the grass cutters wash the horses' grass to make it weigh heavier; the bundles of wetted grass ferment and the microbe starts. Loodhiana fever and Surra also commence this way.

The microbe of Surra lodges in the blood, the microbe of Kumree near the spinal cord. Irritation of the nerves of the back is set up, and the result is Kumree. If this theory is correct, the cure would lie in the internal use of antiseptics as carbolic acid. This form is insidious, as the microbes require time to multiply.

The 1st Lancer horses got Kumree one month after return from Burma; incurable.

The second form, which is really a kind of rheumatism, occurs mostly in hot damp climates during easterly winds, and is called a stroke of land wind. Sometimes it comes on insidiously, sometimes rapidly; it is a chill congesting the blood vessels and causing them to press on the nerves. In districts where Kumree of this second sort is prevalent, never wash the body of a horse, and guard against chills on removing the saddle.

Don't fire or blister in the first stage. Give a sharp purgative, and 1 drachm of extract of belladonna three times a day the first day, and twice a day after; also 1 drachm of carbonate of ammonia three times a day; if belladonna is not obtainable give one grain doses of sulphate of atrophine, laxative food and plenty of water. Foment loins with hot blankets wetted and covered with waterproof. and smear loins with belladonna. Take care the loins don't get chilled; a fresh raw sheep's skin is a good fomentation, the skin to be applied as soon as taken from the sheep. After a fortnight, if paralysis still continues, blister the loins with biniodide of mercury 1 part, lard 16 parts; keep up the irritation, and give 2 drachms of iodide of potassium twice a day.

The third form is the result of strain of the psoæ muscles; the undercut of the sirloin of beef. Causes.—Accidents. It is known as ricked back.

Treatment.—Put fresh sheep's skin on loins and rub on extract of belladonna. After one month apply a light blister, and give nuxvomica 1 drachm twice a day. It is a dangerous medicine and its action must be watched, if muscles begin to twitch discontinue it at once; also 2 drachms of iodide of potassium twice a day till the horse is affected. The injury is so deep seated that external remedies can't well get at it. The nuxvomica strengthens the injured nerves, the iodide of potassium induces absorption of the lymph thrown out by the strain. And the only chance for the horse is six months' rest, and even if he recovers in a temporary way, the least sudden strain may bring it all on again.

ANTHRAX is a blood poison, caused by eating grass grown in swampy places, or by stagnant water. The horse is dull, then feverish; later the brain may be affected with drowsiness. The neck swells and increases

in size, and there is discharge from the nostrils; temperature reaches 106°. The duration of the disease is two hours to six days. The first cases are always the worst; in a few days the virulence of the attack abates, and subsequent horses taken ill sometimes recover. Best remedy, carbolic acid $\frac{1}{2}$ drachm dissolved in 3 ozs. of glycerine, and then add 3 ozs. of glycerine. Give this three times a day. This is taken from Mr. Meyrick's book. He also recommends giving the acid in the form of sodium sulpho carbolate. In this form much more of the acid can be taken, dose 3 drachms every three hours, at first, at longer intervals afterwards. Common salt is also highly recommended, dose 1-lb. at once in two or three quarts of water, and then 4-ozs. every four hours.

All precautions as for glanders.

HORSE SICKNESS IN AFRICA.—Horse sickness is very prevalent in many parts of Africa, in damp hot places. It is caused by a microbe in the grass of swamps. The horse may not show the disease for days; one morning he seems dull and in a few more hours there will be the characteristic foaming at the mouth and nostrils.

If you find it coming on, the best remedy is carbolic acid. One drachm of carbolic in 8 ozs. of linseed oil; or better still, if you can get it, as Mr. Meyrick advises for Anthrax, 3 drachms of sodium sulpho carbolate every three hours. It is a deadly disease.

In December, 1899, I was in Lourenço Marques and had two cobs. Knowing I had to go along the foot hills of the Lebombo, I tried this experiment. I gave one cob every day for a week 1 oz. of Fowler's solution of arsenic (5 grains arsenic), next for one week $1\frac{1}{2}$ drachms of sulphate of iron per day; then again the arsenic for a week, and set off on trek with the two cobs and kept on with the iron and arsenic by weeks on the one cob. I was out 10 days. On return in three days the unprepared cob got ill and died; the other was never sick. In all he had three weeks arsenic, and two weeks iron. It was just like taking quinine myself to keep off fever.

STRAINS.—Sprain of the ligaments and tendons occurs from carrying heavy weights, in heavy ground, or in a very tired horse, as on the race course; in dragging

a heavy load up hill; by accident on uneven ground. There are three kinds, viz.:

1—Slight, where fibres are not lacerated.

2—Some fibres lacerated.

3—When fibres are cut across.

When tendons are affected they swell behind or bow. The ligaments swell sideways. The sheath of the tendon is commonly strained; it is not so serious an injury. The most usual places of strain are on the check ligament, just by the knee, or on either side of the fetlock.

Never blister while there is any heat, or you will produce thickening.

The great cure is long rest. If there is great pain at first, give drench, 2 ozs. of tincture of opium in a pint of water. The treatment is the same for one and all; put the horse on cooling diet, give a dose of physic, and put on a high heeled shoe, heel $1\frac{1}{2}$ in. to 2 in. high. To be reduced by degrees.

The hot treatment at first is better. So foment as directed in the paragraph on fomenting. Use sweating bandages night and day for one week *till heat is gone*.

Then a week of Elliman's embrocation well rubbed in till the hair gets scurfy.

Then cold water douche for two weeks, not cold bandages, as they are never kept cold and wet.

If when the leg is quite cooled down any thickening remains, blister twice with 1 part biniodide of mercury to 12 of lard, giving 2 drachms of iodide of potassium morning and evening in his water for one week or till horse is affected, by violent running at the nose, and weakness.

Then so many weeks' or months' rest as the severity of the sprain may require. In a very mild case say three weeks' rest, in a bad strain at least three months; and *then* bring very gradually on to work. During this time the horse to stand twice daily for half an hour in running water, if it is anywhere near. A strained sinew is more likely to strain again, and there is usually some knot left where the ruptured fibres have healed; always feel down the sinews for this on buying a horse.

Strains often occur gradually, and the careless owner not noticing the little extra heat in the leg, goes for another ride or drive, and matters get worse, till at last

even he finds out his horse is lame. When strained in hocks you must use slings, and give six months rest.

A cooling lotion for strains is a linen bandage wetted with

Muriate ammonia	1 oz.
Pyroligneous acid	2 ozs.
Spirits of wine	2 ozs.
Camphorated spirit	2 drs.
Cold water	1½ pints.

CURBS are strains and require treatment accordingly, and being on hocks use slings. Horse must not lie down as rising hurts him.

THORNS entering a joint produce intense lameness in India. The thorn of thorns is the prickly pear; it is poisonous to the blood, and unless properly treated the horse may be ruined.

Always feel most carefully for thorns after a day's hunting, and pull them out yourself with a pair of tweezers; if you leave it to your groom he may hand rub the legs, and rub them well home, only finding the more prominent ones. Having picked out all you can find, have some stiff mud ready, made by white ants' earth and neem leaves; dab this on all over the legs, knees and fetlocks hot, but not scalding hot; leave it on half an inch thick, if you can get it on as thick, and let it dry on; better put on no bandage.

The mud in caking sucks out the thorns, and acts itself as a good bandage. If the thorn remains in, the horse goes dead lame and the place swells; the best treatment is external fomenting, with a little exercise, and let the thorn work out.

Bandaging.

COLD BANDAGES should be of single thickness of cotton and kept constantly wet, so as to produce cold by evaporation, but unless you have the means of placing a tub of water above, and a rubber tube to bring the water down, so as to trickle continually over the place, it is almost impossible to keep it constantly wet; it is almost worse than useless. It is much better to make the horse stand in a brook for half an hour twice a day,

or turn a hose on him, or you can hang a pail of water up high, make a small hole in the bottom of the pail through which pass a soft rope, tying same round the leg, water will run slowly down it, and keep the rag wet and cool.

FLANNEL BANDAGES, dry, promote the insensible perspiration, and give gentle pressure, and help thus greatly to reduce filled legs. They are always useful.

THE SWEATING BANDAGE is made by placing a thick hot wet flannel round the horse's leg, and keeping the heat and damp in by covering with dry flannel, and oil cloth and bandage; it acts as a continued fomentation and reduces a filled leg better than anything else. Spongeopiline is the best thing to use.

BANDAGES FOR USE IN WORK.—Put the loose end by the knee and lay it flat down the leg to the fetlock, and then begin winding from below upwards fairly tight, till say three inches from the top of the loose end. Turn this loose end down and wind over it upwards to the knee, and fasten with tape as usual. The bandage cannot come undone as the loose end is thus secured.

BANDAGING ON COMING IN FROM WORK.—Remember, when at work a horse's leg is fine, but when he comes back and stands in the stable, especially after an injury, the leg swells. Consequently, if you wind the bandage tight, the horse is put to great agony. Put the bandage on as before, but wind quite slack, and the loose end being fastened, it cannot come off.

SORE BACKS.—Never scrape the numdah with a knife. Dry carefully and brush out well the numdahs. Have saddles on daily at watering in order to keep the back used to the saddle. The practice of letting horses go to water and exercise in numdahs only is bad. Felt numdahs are valuable from their softness, and they keep the back from pressure, but on service there is nothing like the folded blanket. When the horse loses flesh on service the felt numdahs often fail, but a blanket can be folded in any number of folds, and arranged so as to be a substitute for the stuffing in the saddles. Horses sore under numdahs often recover under blankets. A sore back is not always the man's fault, but allowing the men

to loll about in their saddles may cause many a sore back. Sore backs are often caused by long pressure on the back, dismount as often as you can. For swelling, attend to the numdahs, and apply salt and water on a towel folded. Leaving the saddle on the back for half an hour is the best preventive after work.

WARBLES is a little tumour either hard or soft, on the withers or back, caused by saddle pressure. Too short a saddle causes warbles. Dip a towel in salt and water, and lay it on folded; or take

2 drachms acetate of lead,
1 drachm sulphate of zinc,
1 pint vinegar and water.

For a bigger warble slit it with a penknife; pricking is no good, as it will only fill again. Dress with salt and water.

SIT FAST is a badly treated warble, found usually on the near side of the wither, as the carbine drags the saddle. Take a penknife and cut out the whole lump of deadened skin, even if you have to go down $\frac{1}{2}$ an inch, brush a little carbolised oil over it, put on a wet rag and let it cicatrize up. Carbolised oil is 1 part of carbolic acid and 20 parts of glycerine.

ABSCCESS.—If an abscess forms (we know an abscess by the fluctuation of the part), poultice and open it, at the lowest part, keeping hole open with tow, removing this daily to let it drain. Dress with carbolic acid 1 part, oil 15 parts. If the abscess does not come to a point, but burrows down, it becomes a fistula; find out how deep it goes, and put in a bistouree, and cut it open right through. Dress with carbolic acid 1 part, oil 15 parts, inject with syringe in sinus chloride of zinc solution.

GIRTHGALLS AND ABRASIONS.—The surcingle must be looser than the girth. Horses with short backs and very round ribs are more liable. Dress with salt and water on a towel, or with 1 part of carbolic acid, 20 parts of glycerine. Keep the girths soft: if horse must be used, put on a greased pad or sheep skin.

BROKEN KNEES.—This injury varies in intensity from the knocking off of a few hairs to the open joint. In any case where the skin is in the slightest way broken, don't let the horse lie down, keep him tied up till all danger of the skin re-opening is over. If you let the horse

lie down the skin cracks and dirt gets in the wound. In any case put the horse on laxative diet, and in most cases it is advisable to prepare the horse for and to give a dose of physic.

First case.—The horse falling grazes the knee and the knee swells, but the skin is not cut through. Apply cold water douche as soon as possible, place a tub higher than the knee, and with an India rubber tube conduct water to the knee, tie the tube round the leg above knee. Tie up the horse's head so that he cannot get at the knee. I don't mean the hose from main, it would be too violent.

Second case.—Skin raised and a nasty looking cut, but not quite open joint. Cleanse the wound thoroughly with tepid water and sponge, squeezing the sponge above the wound, every bit of grit must be removed; don't apply sponge to the wound. Keep on the cold water douche for two days, as described above; longer than this may damage the vitality of the part. And from the first, stopping the douche for an hour, applying four times a day a lotion of 4 drachms of pure carbolic acid to 1 pint of water, or very strong alum and water. Apply it with a sponge above the wound. It dries the wound and destroys disease germs.

In a bad case, after two days' cold water douche, apply a fly blister round the wound, but not on the wound, nor above it, for fear it might trickle in. Never stitch a broken knee. Never apply ointments or greasy mixtures, they tend towards the formation of matter, which is, above all, to be avoided in healing broken knees. Fomenting also tends to form matter. When the skin is quite healed, a little paraffin oil will help to make the hair grow, smeared once every second day. At intervals keep on vaseline, or what grooms call fresh liquor, that is lard without any salt. Half paraffin, half water is strong enough.

In some cases dirt gets under lower edge of wound and matter forms; cut a slit below it, through skin only.

Open knee joint.—The cut extends right into the joint, a yellow oily fluid trickles down the leg. Get the horse in a stall and cleanse the wound thoroughly with tepid water, no grit must remain; replace the tendon

and never probe, give a dose of physic. Don't wash away synovia after the grit is removed. If the pulse is high give 10 drops of Fleming's tincture of aconite, repeat once after four hours. If great pain give opium instead, say 3 drachms of opium or 3 ozs. of tincture; this may be repeated once.

To stop the flow of the synovia dust on slacked lime to form a coagulum. Get slaked lime, reheat it red hot in the fire, and, when cool, keep powdering it on. The reheating destroys the caustic properties, and adds to the styptic effect. Don't wipe away the synovia, and when the fever has subsided, apply a strong fly blister round, but not above the wound, and inject, with a syringe, carbolic acid 1 part, glycerine 4 parts, water 20 parts, and keep some lint saturated with the lotion hanging over the knee—this is to destroy the disease germs. The blister helps to close the wound, and the swelling it produces keeps the knee stiff and prevents motion.

Feed on mashes and carrots. Put the horse in slings. If the discharge tinges silver black the bones are injured. Never stitch an open joint. Don't apply bandages. If tendon is crushed and cut, it must slough out, and if the animal survives the joint is stiff for life.

If an adhesive scurf appears after wound on the knee is healed, apply liberally fresh lard; don't scratch off the scurf.

Dressing for wounds:

Carbolic acid	1 oz.
Resin	2 oz.
Camphor	5 oz.
Methylated spirits of wine..	15 oz.

To keep off flies dress wound daily with carbolised oil, then paste on thickly sulphur and oil; no fly can settle.

Dressing for wounds:

Fresh lard	1 lb.
Linseed oil	2 oz.
Palm oil	2 oz.

Melt over slow fire. When removed and getting cool stir in 6 ozs. of Goulard's extract of lead. Continue stirring till cold.

In India cocum is useful.

CHAPTER V.

Cleaning Brown Harness or Saddlery.

Don't use more water than you can help. Sponge off mud and wipe off dust, and rub it down with good yellow soap lather, getting this off again with dry cloth and thus polishing the leather. Saddle seats and the flaps are also polished with yellow soap. Dubbing should occasionally be applied to the under side when it is slightly damp, using a brush.

Never use soft-soap, it perishes leather.

Never use very hot water.

Never dry leather before a hot fire.

If leather is very dirty from long neglect, the only way is to wash it well with soap and water and put a little washing soda in the water and scrub it with a brush, then wash it again with soap and water to get rid of any trace of the washing soda, and let it nearly dry; then you must brush over some dubbing to feed the leather, but it will take some days before you can get a polish on the leather.

TO CLEAN NUMDAHs.—A little Scrubbs' Ammonia in hot water, sponged over the numdah, will remove all caked sweat, and when dry the numdah will be like new; but in the ordinary way numdahs are cleaned by being well brushed and beaten.

To water-proof boots on service, rub in castor oil, it keeps them soft.

BLACK HARNESS.—Sponge off mud and wipe off dust, and when dry, apply compo with a soft brush and polish with another soft brush.

If the harness is dry like a stick, apply a little neat's foot oil, but it won't take a polish for a week.

Stonehenge says, after water has touched leather some grease must be used; neat's foot oil is very good, but likely to stain the trousers, when applied to saddles. The best application is deer's suet, warmed and rubbed in before the leather is dry, that is, while the leather is a bit limp, for if leather is allowed to dry before a fire it gets hard, and when it becomes dry like this, nothing but soaking with oil will restore its pliability. Vegetable oils, with the exception of castor oil, have a tendency to become hard. Castor oil is as good as neat's foot; it is said to turn leather dark.

NATIVE RECIPE FOR SADDLE DUBBING.

Mutton fat	1 lb.
Linseed oil	$\frac{1}{2}$ lb.
Wax	2 ounces.
Resin	1 ounce.
Camphor	2 ounces.

Melt the fat and wax, stir in the oil when hot, and mix in the resin finely powdered, and the camphor ditto. Strain off and cool.

TO CLEAN BITS.

Unbuckle bits directly after work and put them in water; clean, dry, and put a little neat's foot oil on them. They are polished with dry leather and silver sand.

The general rule for biting is to place the bit one inch above the tush, the bridoon not to wrinkle the cheeks, but most horses go more comfortably if the bit just misses the tush; the curb chain then lies in its proper groove. This a useful hint for riding pullers.

The bit in width must fit the horse's mouth, too wide is bad, too narrow is bad, both irritate the horse, the iron in the mouth thick and resting on the bars. A proper

port ensures this as it gives room for the tongue, but the port must fit the tongue also.

Stonehenge says, a 15-3 to 16 hands English horse should be 74 inches in the girth.

9 square feet	1 square yard.
30 $\frac{1}{4}$ square yards	1 pole.
40 poles	1 rood.
4 roods	1 acre.
4840 square yards	1 „
A piece of land 69 by 70 yards ..	1 „
A truss straw	36 lbs.
Truss hay	56 lbs.
2 trusses hay	1 cwt.
Load old hay	18 „
20 grains	1 scruple.
3 scruples	1 drachm.
8 drachms	1 ounce.
12 ounces	1 lb.
Oats, 4 quarters	1 peck.
4 pecks	1 bushel.
4 bushels	1 sack.
2 sacks	1 quarter.

At 40-lb. to the bushel, one quarter weighs 2 $\frac{1}{2}$ -lbs. of oats.

Summering of Hunters.

IN SUMMERING HUNTERS you cannot expect that any good can come to a horse if you send him in early April out of the warmth and comfort of his stable to rough it in the fields, exposed to wind, rain and cold. April should be employed in preparing him gradually for his outdoor life. Also in what repairs may be necessary to bone and sinew; legs and joints to be cooled down, and what little blistering or firing that may be required should be done towards the end of this month. After three weeks observation of what rest and cold applications will effect, see also that the bearing surface of the foot is square. Standing the horse up to his knees for two hours in water is good; the horse to be well clad.

It can be done in a pond, or in a tub in the stables. After the 15th June he should come in again, as the flies get troublesome. His loose box should open into the paddock if possible, so that he can go in or out as he pleases; of course such is rarely attainable. But anyhow some little protection should be set up by way of a shed. After the 15th June the horse is better in his loose box and gentle exercise given, gradually increased as found necessary; but if bone and sinew be uninjured the horse is better for not turning out, but to get light harness and hacking, with of course some tares or vetches in moderation.

Autumn run to grass, October and November, renovates legs and feet; horse to be prepared for it.

Blistering is often tried on an enlargement, when it is not necessary or not even of service.

Many enlargements of the fetlocks come from the bearing of the foot not being square. In a few weeks after the proper bearings of a foot are altered, the parts will show it by enlarging.

If the toe gets too long, the back of the fetlock enlarges.

If the toe is too short, the fetlocks knuckle over.

If the outside of the foot is unduly worn, the outside of the fetlock and pastern enlarges.

If the inside is unduly worn, the inside enlarges.

Firing iron or blister does no good applied to conditions as above named, as long as the cause remains.

The enlargement put on is an extra stay thrown out by nature to help the part.

Camels.

Camels vary in strength; a large one can carry for two days eight maunds, but the average load for ordinary marching should not exceed four maunds. The rate of marching is two-and-a-half miles an hour.

Camels, with the exception of the Punjab camel, are useless in wet weather on slippery ground. Camels accustomed to hill districts can climb well even over rocks, provided they can see the path; always use the saddles brought with the camels.

Let them start each morning at such an hour that they can get away to the jungle after work, with time to have a full feed before evening.

A camel is full grown at eight years old, when he has the full complement of teeth, four incisors above and four below.

At six years old he has two above, two below.

At seven years old he has three above, and three below. Camels work till 25 years old. The tush comes at seven years old.

In choosing camels see that the elbows are clear of the ribs.

Hind legs much bent are disadvantageous.

Make the camel kneel and examine his back, if the hump is much wasted the camel is old or has been starved and neglected and overworked.

Short legged camels are the best for long continued hard work.

Diseases.

Owing to want of nervous sensibility camels do not show outward signs of internal disorders like horses.

For colic give two quarts of ghee.

In dysentery give ghee, and then daily 1 drachm of opium and 10 grains of calomel in a quart of boiled rice for three days.

In mange treat with mixture of sulphur and tara mera oil.

In fits caused by exposure to the sun give 3 drachms of croton seed, and shelter the camel and put wet cloths on his head.

Balance of weight is the secret of good loading in camels. The girth is always loose; the saddle must be the one he is used to. Camels eat various kinds of grain and missi boosa made from the stalks of vetches; they dislike white boosa, which is made of wheat and barley straw, but eat it.

In a good jungle they can forage for themselves, and one good meal here is enough for the 24 hours. Large numbers of camels are ruined by sore backs caused by ill

fitting saddles. Let the camels move on as soon after loading as possible.

For sore backs, relieve pressure, and, if suppurating, cut well open and inject carbolic acid and oil one to fifteen.

Keep off flies with a thick mixture of sulphur and sweet oil.

Ponies and Mules.

Are the best carriage; they can be used as pack animals, or better still in light carts.

If there is anything of a road pony or mule, wheel carriage is the thing.

In selecting for pack work remember the slightest hollow in the back renders it liable to fail; the back should be straight or convex. Straight shoulders and short pasterns, elbows well out, and hocks wide apart. This gives strength to carry weight.

See there are no brushing marks. Select animals with black hoofs, short backs, round ribs, short legs, good eyes, and mules should not be parrot-mouthed, or they cannot graze.

Feed with 4 lbs. of gram, and as much grass, boosa as you can get. With plenty of good grass mules will even do without gram.

On a forced march four ponies started with full loads on their backs to do 184 miles; they got through in 72 hours, and, after two days' rest, marched back again 20 miles a day.

Pack Saddles.

Most forms of Government pack saddles are either too heavy, or liable to gall. Now the pack saddle used by the Native Cavalry on their baggage ponies is light and does not gall. It is made of a tube of strong canvas six inches diameter, stuffed with dry grass, in shape of the staple of a padlock. The two legs are held on the upper surface by broad bands of tape; they rest on the back, with the spine in the space between. The angle formed by the bent portion is in front of the withers, a folded blanket goes under the whole to prevent rubbing

the skin. Boxes and other packages are carried by being placed in opposite ends of a broad canvas sling, formed by sewing together the edges into a shape like two sacks. This sling rests with its central portion across the canvas tubes, and the packages are arranged to balance. Over all goes a canvas band, with a leather string fastening, a sort of girth or surcingle. Thus the withers and spine are not pressed upon.

On Saddling Horses.

The saddle is best cut buck, with level seat, as it saves the withers. Place the saddle a little behind the play of the shoulders. Two fingers should go in easily between the pummel and the withers, and between the girths and the body of the horse; the numdah pulled up into the pummel of the saddle. If a running martingale is used, the length to be such that the rings are very near the throat lash when the horse is carrying his head bent. If you have buckles on your reins you must have stops on the reins; if you chance to have no stop on the rein the martingale ring may slip over the buckle. In this case pull the ends of the leather at the buckles out of their little straps. A ring through which you pass the snaffle reins makes an excellent hunting martingale.

You should be able to pass three fingers between the throat lash and the horse's neck, or you choke the horse when he bends his neck.

Two fingers flat between the curb chain and the groove in the jaw where it ought to fit.

The bit is more comfortable in the horse's mouth when let down to $\frac{1}{2}$ an inch above tush in the horse, and say 1 inch above corner incisors in the mare.

The standing martingale is better than the running martingale for young horses; it helps to make their mouths. For length draw the horse's head forward till the nose comes on your chest in a 15-2 horse, and attach the martingale to the rings of the snaffle bit. It is most useful at polo, taking the pull off the rider's hands. Horses can gallop freely, and even jump in standing martingales, but jumping is not safe, as if he stumbles he cannot fling up his head to recover himself.

If cavalry had strap fixed to the hind D of the head collar ending in a tongue and buckle, this could be fastened to the D on the breast-plate it would be a standing martingale. When the men dismount on order, sections with carbines dismount, unfasten the strap from the breast-plate and fasten to D on head collar of the next horse. The horses are then linked, and No. 3 can gallop about anywhere with the horses thus linked together.

Horse Breaking.

Most horses when bought are very stiff about their neck and shoulders. They are untaught; they don't know how to walk, trot or canter, and it is difficult to get them to turn, and all the weight is on their shoulders.

Commence by taking things quietly, spurs without rowels, and a cutting whip, to be used lightly just behind the girths.

Move off at a walk, using a snaffle bit, lightly feeling the mouth; press legs and whip firmly against the horse's sides if he starts slow. Lazy movements, any attempts at kicking stones or inequalities of the ground must be met with a quick pressure of the leg and whip, or even with a smart touch, as a warning of punishment that could come. Half an hour is long enough for a lesson, and then change the pace. Never let a horse slouch, or your work is undone.

In the trot the fore feet should be lifted well off the ground, the horse using his shoulders; the hind legs should be brought well under him. The ill-broken horse does not throw out his fore legs.

Take up the snaffle rein, feel the mouth firmly and lightly, and drive the horse into his trot with leg and whip; not too fast, each leg doing its true stroke.

For the canter take up the bit rein and bend your horse's head slightly to the near side and press your left leg well against his side. This will cause the horse to start off with the off fore, the off hind to follow the off fore. As soon as you get him fairly started, change the bend, so that you may just see the horse's right eye from

the saddle. The horse can only turn comfortably to the side to which he is bent.

A well broken horse starts to the canter at once from the walk, but to teach him to do this, practice reining back and moving forward, so as to get the haunches under him. To get a horse to rein back take snaffle reins, one in each hand, and feel them alternately, closing your legs to get the haunches under the horse. You only rein back by sheer force of arm, if you don't use your legs also.

Three-quarters of the art of light hands is the use of the rider's legs; a strong feeling of the legs as you draw the reins helps to stop the horse.

The use of the legs is everything in circling a horse or turning him sharply, but remember the horse must be bent, must look the way he turns.

When you have learnt the use of your own legs, teach the horse to change leg; and when you have taught him to change leg smoothly and steadily you may practice figure of eight. When you and your horse can do this neatly and easily, can bend, rein back and start from the walk to the canter without an intermediate trot, your horse will be as handy as any you are likely to meet, the pleasure in riding him worth the trouble it has cost.

If your horse won't jump, find out first if there is anything wrong with feet or sinews that makes him dread the strain.

Nothing being wrong and the horse only timid, nothing is gained, not even time by beating him; beating only makes the horse hate the sight of the fence. Get him led over gently with a rope held by two men a few times, then mount and gently go over any small wall, and make much of the horse, and as soon as he finds out there is nothing likely to hurt him he will soon jump quite quietly and pleasantly. If he is a bad tempered one, don't fight with him at the jump, pick a quarrel at some other place and try and become master then if you can.

Breaking-in Vicious or Troublesome Horses.

Suaviter in modo, fortiter in re.

If you have a vicious horse, it is necessary to show him that man is master, if in the struggle he chances to win, he will always be tempted to try again, consequently it is more effectual and far quicker to bring science into play, and thus give the horse no chance of success.

Rarey began the idea, Captain Hayes carried it on : under the first one fore leg was strapped up, and the horse was made to bound round on three legs, another strap being fastened round the fetlock of the other fore leg with a long line passing through a ring on the surcingle to the breaker's hand, so that at any moment this leg could be jerked up, and the horse brought down with a crash, but it was a great strain on the hocks. A safer plan is putting may we call it a straight waistcoat on the horse. This consists of a rope or strap encircling all the four legs, passing around three inches below the horse's belly, and held up at the withers and loins by straps passing across these to the main rope.

If you have the straight waistcoat in two parts, the one going round the chest ending on each side at about the girth place in big buckles, and the other half going round the thighs and quarters ending in long straps, you can pass these through the buckles of the first end, and tighten to any degree you like, if you pull hard all the legs are drawn up and the horse would fall, or it can be sufficiently loose to hold the horse and prevent any kicking while he is being groomed or shod, or it can be so loose that the horse can walk or trot and yet is restrained effectually from galloping, rearing or kicking.

All this can be arranged by simply loosening or tightening the encircling straps.

To subdue the horse, strap up one fore leg by putting a stirrup leather round the fetlock, running the end through a ring on a surcingle which you would put round the horse, and fastening the buckle, getting the leg at a right angle; this is far safer than the old way of strapping the leg to the fore arm, as in the old way the skin of the knee is drawn tight and is very liable to be cut.

Put on knee caps.

Put a twitch on the horse as follows: get a noose round his neck so arranged that it will pull close up, and then get checked by a knot so as not to strangle the horse. Get the knot and loose end to the off side, slip the rope into the horse's mouth, passing it between the teeth and the upper lip, and then through the noose on the near side of the neck. A sharp tug on the rope quite cows the horse, and acts far better than the old form of twitch on the nose, because it only hurts when you pull the rope, so that the horse is not in agony, when he submits and is quiet.

To throw the horse, have a snaffle bridle on, and the straight waistcoat, and strap up the near fore leg, pass the reins under the neck and over the off side of the neck, standing yourself on the near side, pull his head round to the off, the men on the side ropes pull hard, then the horse after a vain struggle sinks gently down on the very spot. When the horse is down strap his head with the reins to the girth strap, pulling the head well round, then ease the fore leg and the straight waistcoat, and let the horse kick about, he cannot rise as his head is pulled round, after a few minutes ease his head and gentle him. Then seeing the twitch is in its place allow the horse to rise, and gentle him and talk to him, and then lead him on a few paces, if he fights jerk the twitch, strap up the leg, and put him down again, there is no difficulty in it.

But if on being let up he walks round quietly (for with the ropes eased a horse can walk and trot in the straight waistcoat), fasten the side lines at the slackness required, at the buckles, giving the horse's legs sufficient play to go round comfortably. He cannot kick, rear or bolt.

Then get an old saddle on him, and checking any fractiousness by the twitch and voice, buckle on light rope reins, passing them through the stirrup irons, the reins should be each 16 feet long, and not joined at the end for fear of accidents.

Let a man lead the horse gently round, and drive him round you in a circle, and almost at once you can dispense with the assistant, and the horse will go round quite nicely.

Change by turning him from you, outwards, and let him go round to the other hand, aiding him round with a show of the whip but not hitting him. Turn him sharply and firmly and he soon understands, but don't turn him too gently at first, he must understand you are master. It is wonderful how soon they understand and give in, then when he has had enough exercise, gentle him, and give him a little carrot from the hand, and let him go to the stable.

Of course with horses that are not vicious, and you only want to lunge them, the straight waistcoat is not required. This form of lunging is vastly superior to the old way on one rein, because you don't pull on one side of the horse's head, and you can change with ease.

It simplifies matters immensely to do this in an enclosed space, say 25 yards by 15 yards, if you have not a riding school, do it in a corner of a field, enclosing the two open sides with hurdles. To teach him to jump, lay two big poles on the ground of six inches diameter and 12 feet long, on opposite sides of your circle, and drive him over them, and raise them by degrees and you teach the horse to jump. It is a good precaution to bandage the legs from the knees to the fetlocks, and to use knee caps, for the poles must be fastened firmly so as not to fall, and the horse learns not to rush his jump, and the solidity of the pole is his best safeguard to his not hurting himself.

To break to harness if a quiet young horse, putting him in a pair with a good steady break horse will soon teach him.

But if he is vicious and has learnt bad tricks, kicking, etc., put on the twitch and the straight waistcoat, so arranged as to let him walk and trot, and he is fairly helpless, then put him in the shafts or break.

To get a young horse to face all street noises and sights, it is a good plan to let him be led through a few times with straight waistcoat on, it keeps him from dancing round.

To get a horse into a railway carriage, a loose straight waistcoat and a twitch under the upper lip, will probably bring the most violent animal to his senses.

To Entrain a Squadron.

As there is always a trouble preventing a horse getting sideways on to the door, fasten two ropes, one on either side of the entrance to the truck, and cross them on the ground, with a man at each ready to take hold if necessary. Lead the horses one after another to the box, directly one jibs and has crossed the rope, the men pick up their ends and walk towards the box, and the horse with the crossed ropes is forced straight into the box, and cannot get broad-side on, the ropes are then set for the next troublesome horse. This arrangement is set at every horse box, and the loading goes on all down the train at the same time.

Driving.

If you use a breast collar, which is always better in light work, use the swingle bar; it saves the shoulders from rubbing.

With the ordinary collar take care the horse has room to breathe; or that it is not so large as to wobble about. If you must drive in too big a collar, pass a strap from the turret on the collar to the buckle on the trace, both sides, pull strap a little tight, and it will hold collar steady.

In military driving in a team the taller horse must be in the lead; all traces must have a slight incline upwards.

In dog cart, the buckles of loops holding shafts should be opening and shutting, it shows the balance is good.

In a private team the leaders may be a little smaller as they pull from the swingle bars.

The wheel horses must be powerful as they start the coach, and the whole work comes on them at corners.

In starting a team or tandem always have leading traces slack or you court trouble.

A FEW PRACTICAL SUGGESTIONS
ON THE
TRAINING OF POLO PONIES AND
PLAYERS.

A few Practical Suggestions on the Training of Polo Ponies and Players.

Training Polo Ponies.

A TYPICAL POLO PONY.

A thoroughbred, on short legs, good sound feet, plenty of bone, broad forehead to give room for brains, "an eye like a woman's, bright, gentle and brown." A lean neck and wide between the jaws, for if head and neck are not put on right, no teaching will make the perfect mouth, good sloping shoulders, short back, powerful quarters, and hind legs not quite straight dropped, but a little bent under from the hock to help him to turn quickly.

I want to show how, by good management, a regiment or club can have perfect ponies for the big tournaments at little expense.

The £200 bought pony will not equal the pony trained as shown below for handiness.

The team requires 16 ponies for the tournament, so buy 25 ponies, untrained, five to six years old, well-bred, of good shape and sound, six months before the tournament. Don't buy mares. The ponies are stabled together, and given three hours' exercise a day, always ridden, never led with another pony.

1st month.—One hour in the riding school a day, learning the single and double ride, shoulder in and rein back; two hours' walking exercise in the country, the rider swinging a cane, but never hitting the pony. If any punishment is required, put the pony down gently, fasten his head round, and show him by science, not by thrashing, that the man is the master.

2nd month.—Three hours' work a day. The rides are done at the walk and trot, with bending lessons, etc.

Two hours' walking exercise on bridle paths; the cane is now a polo stick, and stones may be gently hit at, or a polo ball may be gently taken about at a walk.

3rd month.—Three hours' work a day. The rides done at a gentle canter, with lots of changing on the circle, shoulder in and rein back. Then two good players on trained ponies take a polo ball up and down polo ground at a canter for ten minutes, and the recruit ponies can follow, but without going to the ball, they begin to learn the dimensions of the ground and to follow a ball. Country walking exercise.

4th month.—Three hours' work a day, riding school one hour. The ponies in pairs take a ball up and down the field at slow canter for ten minutes, and practice riding off at a very slow pace, rest of time walking.

5th month.—At the beginning of this month seven ponies are sold, advertised as good polo ponies, but not up to tournament form—they cannot all be trumps. The 18 remaining ponies now play in gentle practice games, never more than one chukkur; don't sicken them of the game; rest of hour walking, one hour riding school, ten minutes fast up and down field in pairs with a ball. Practice going from a canter to speed, practice riding off; rest of hour walking.

6th month.—Three hours' work. The practice games three times a week at a fast pace, but for never more than one chukkur; rest of the hour walking, a few times fast up and down the field in pairs with a ball, rest of the hour walking; riding school one hour.

Have blood ponies that do not want whip and spurs; these ruin any pony. All through it must be understood a pony does not gallop on a race course, or in hacking or hunting, or anywhere but on a polo field. Ten minutes fast polo is hard work. It seems a lot of riding school, but it pays. The riding schooled pony will turn quick at a fast pace, pulling up and whipping round where another pony would take a 50 yard circle.

The ponies must be ridden in standing martingales fastened on the hind D of the nose band. It is a great trouble and expense, but as you sell after the tournament in the middle of the season, it pays.

I give roughly what it costs:—

	£
Cost, 25 ponies at £30.....	750
Feed, 25 ponies, 4 months.....	200
Feed, 18 ponies, 2 months.....	72
8 stablemen, 4 months.....	128
6 stablemen, 2 months.....	48
10 riding boys, 6 months.....	240
Riding boys' dress.....	40
Horse clothing, saddlery, etc.....	140
Shoeing	30
	<hr/>
	£1,648
	£
Sale, 7 ponies, after 4 months.....	280
Sale, 16 ponies, after tournament.....	1,280
Sale, 2 ponies.....	80
Sale, clothing and saddlery.....	35
	<hr/>
	£1,675

I have not charged for stabling, but this is easily got in a cavalry regiment.

Now, as the polo tournaments are in May and June, £80 is a moderate figure for such highly-trained ponies to fetch, and you buy in December. The tournament players do not begin on the ponies till the fourth month, for they might not have time or patience. All players must learn on their own ponies, and the reward of a good player is promotion to the tournament ponies. He is tried for his "blue." Consequently the poorest man in a regiment or club is not debarred from tournament play by lack of means, and it is good for the club, for they might have a fine horseman, who cannot afford tournament play at his own expense. The six months can be cut down to four, but with the full time wonderful results can be obtained. On slippery grass the ponies should have short frost cogs, that tap in and out, put on outside of shoes.

The Men.

But the players, also, must have a lot of training, and for two months before the tournament they ought to sit on a dummy horse (built like a gymnasium horse, but with projecting spars to represent the ponies' legs and

head) for half an hour a day. The dummy horse should be 14-1, when polo pony height is 14-2, for a pony at a gallop is lower. Four boys stand before and behind at 15 yards distant, and bowl in turn at varying speed. They must have small protecting walls. The player learns to hit hard and straight, and not to hit his pony. Further, he should have reins, and hold them with a feeling on the horse's mouth. But, at the moment of hitting, he must be taught to turn his left wrist to the horse, thus easing the reins; it must come by instinct.

Watch an inexperienced man; when hitting he turns his wrist to his body, and catches hold of his horse's mouth to steady himself. So the horse slackens pace and checks on the ball, till at last the horse gets a habit of checking on the ball, which is fatal; as he dreads the tug on his mouth when he comes up to the ball. Of course there are times when you have to do a bit of turn when striking; but then you and the pony have done riding school, and you both know that a pressure of both legs with a feeling of the reins means ease up; then with the application of the leg required round you go, and off again at full split, the sway of the body helping the pony round. Half the secret of light hands is the proper use of your own legs.

For proper length of a polo stick, sit on the pony and stretch down your arm, the end of the stick to clear the ground by two inches. Don't have too long a stick, for the pony is lower at the gallop.

Practice on the dummy horse strengthens the wrist.

A very good bending and changing leg lesson is obtained by setting up ten light posts in a line eight yards apart and galloping the pony in and out through them up and down the line.

Rules for Play.

For bridle a light double bridle with standing martingale.

Play in Newmarket racing bandages.

- 1.—Never hang back on the chance of your adversary missing the ball.
- 2.—Always return to your proper place in the game quickly.

- 3.—Every member of the team to play for his side.
 - 4.—Directly one of your side is evidently about to strike the ball, turn your pony in the direction the ball will go.
 - 5.—Always move fast even at risk of missing the ball, trusting your own side to back up.
 - 6.—Don't hang to make certain of hitting, your certainty of hitting must come from private practice.
 - 7.—Remember riding hard baulks the other side, even if you miss, they cannot chance it, and you carry them on, while your backer-up gets the ball.
-

Hints to Stewards on Measuring Polo Ponies.

A polo pony must be 14-2 or under, with shoe allowance. But an owner may have a 14-3 pony, and it is a great thing to get him passed. Passed he may be worth £200; rejected say £40. The owner can get him to measure low by walking him all night, and thus bringing him up dead beat; by illness through physic; by cutting down his feet. The stewards can easily detect these tricks. But there is a way every steward should be on his guard against. If the owner, for a month or so before measuring day, measures his pony daily with a hot iron bar, and just touches him once or twice, the pony will wince and shrink at any bar, and he can be taught to crouch gently, almost imperceptibly, and thus get off a good $\frac{3}{4}$ of an inch.



VICE IN HORSES.

Vice in Horses.

Always start with the idea, that a young horse wants to please, if he could only understand what you want him to do.

What is apparently bad manners on the part of a horse, is often bad hands and bad nerves on the part of the man. How often one sees a horse that is dangerous with one man, perfectly quiet with another.

RUNNING AWAY.

If a fourth flight man gets on a first flight horse, the horse is at once described as a runaway brute.

If you irritate a horse with bad biting, a tight curb chain cutting into the jaw bone, you goad him into bolting, to get away from the pain if he can.

The mouth of a horse certainly gets callous from continued ill treatment, and as the man in strength has no chance against the horse, the horse does bolt. But even then with lots of room and a little nerve, there is no great danger, for the horse won't hurt himself if he can help it, it is only with frightened horses that there is real danger.

If you are a bad horseman with bad hands a run-away is no good to you, it is better to part with him.

If you are a good horseman, and you have bought a hard-mouthed bolting horse, get him into a very big field, try him with a lighter bit, properly placed, and a tight nose band, and let him bolt on a circle if he wants to. You will soon have the mastery, and have him put through riding school to get him more on his haunches, instead of going on his forehead. The horse may pull from eagerness, but he won't bolt if he understands that the bit won't hurt him, and the man has hands.

REARING

Is of course very dangerous to a bad horseman. Many a horse prances up a bit with excitement, if no notice is taken, nothing happens, but if the man holds on with his reins there is trouble. The horse is trying to get away from the pain caused him. No horse wants to fall over, but bad hands may bring him over, or a strong horseman with a bad temper may be fighting an impetuous horse with a temper, and a disaster may occur, therefore the advantage of bringing in artificial means to ensure winning as described on page 72.

The horse won't fall as long as the fore legs are striking out, but the moment they drop in, get clear of your stirrups, and prepare to fall.

If you have a confirmed rearer, lunge him well with the double reins as described on page 74, and attend most carefully to the placing of the bit, and see that it is not hurting him. Never hit or spur a horse that is rising, the time to hit is just as his feet come down and thus drive him on.

JIBBING.

The horse runs back, and there is danger in harness. First see that there is nothing hurting the horse, such as bad biting, a tight collar, or sore shoulder. If it is vice the horse must be thrashed, and the method described on page 73 is the best and quickest way.

SHYING

Is often from defective vision, examine the eyes carefully, or it may come from a little timidity in a young horse, kindness and making much of him and firmness will soon cure this, thrashing the horse is absurd. A young horse will often bound across the road because a bird flies out of a hedge, but it is only play. Get the horse used to motor cars by kindness, you only make him worse by thrashing.

STABLE VICE

Is the fault of the groom, a nervous or brutal man will soon spoil any high couraged horse. Say a man comes and tells you he cannot wash the horse's feet, ask him to do it before you, you will probably see him stand

away from the horse, and pull the leg *outwards*, before he lifts it up and back, no wonder the horse objects, it hurts and overbalances him, ask a friend to lift your foot, if he pulls sideways as he lifts it back you will soon understand.

Some grooms think they overawe a horse by hitting him in the stable, others run the bristles of the dandy brush into the horse's eyes. No horse will stand continued ill treatment.

The only way is to change your groom, and get a reliable man, and let him get friends with the horse, a horse soon answers to kindness, a little sugar, or lucerne from the hand often works wonders. If the horse has been made vicious, and must be overawed, try page 72, and then make much of him.

Horses often have kicking fits in the night, it is often bad management. See the roller does not slip back, it must have a breast strap. Often the stable is hot, and like a man the horse tries to throw off his clothes, something may be pricking him in his rug. Attention to details saves a lot of trouble. If the horse bites and kicks when being groomed, tie the head to both rings over the manger, and put on the straight waistcoat (page 72), he is then powerless, but treat him extra kindly, and the odds are that as soon as he understands you don't want to hurt him, he will be quite quiet.

DIFFICULT TO SHOE.

A twitch between the lips and teeth, which only hurts when you want it to hurt, and a straight waistcoat, will render any horse quiet, he cannot kick, and yet the farrier can lift any leg (page 73).

BUCKING

If not done in play, and not caused by something wrong in the saddle, is vice, being a determined effort to get rid of the rider. Good lunging as described will often cure this, or put the horse down a few times. A first-rate horseman may enjoy a tussle with a buck jumper, but with ordinary individuals a little science will cure the horse and give him no chance of winning.

TRAINING FOR GYMKHANA
AND
AMATEUR RACE MEETINGS.

Training for Gymkhana and Amateur Race Meetings.

If you are in India, and chance to be a light weight, you may have lots of fun at the gymkhana races with your own horses and ponies, and many of the suggestions apply just as well to England.

TRAINING.

Given that you start with a fairly sound horse or pony, the horse must be out of the stable for three hours in the day, and let him get over 15 to 20 miles of ground a day according to the race, bar Sundays, then one hour's walk.

Lots of walking and steady slow trotting with a light weight up, or even in harness if you like, but work the horse must have, and not too much galloping. Over galloping is very disastrous, the horse may get overdone, and shin sore, lots of trotting does not shorten the stride, and it gets up the muscles.

After a gallop, watch for the horse to blow his nose, he ought to do it soon, and do it strongly, it is a sign that he is all right; if he is long about it, and only does it in a half hearted manner, the horse is overtaxed, ease the work.

If a horse is very fat at the beginning of training he should get a dose of physic, to get some of the fat from his stomach.

In soft condition a horse lathers in sweating, as he gets hard the sweat gets thin like water and dries quickly.

Watch the water he drinks, as he gets fit he will take rather less water. If he wants a good deal more than he used to, give it him of course, but he is over taxed, ease the work. See how he eats.

Let whoever rides in a race learn to judge pace. I think I can best describe judging pace as follows: Say A

and B about equal runners start for a quarter-mile race, B knows he can do it in 57 seconds. A does the first hundred yards in $11\frac{1}{2}$ seconds, B in $12\frac{1}{2}$. A does the next hundred in 12 seconds, B in 13. A will be then 15 yards in front, but B has no reason to fear this, he continues at 13 seconds to the 100 yards, and A must come back. B has judged pace and A has not. But suppose A was rightly judging pace, and really doing the time I suggested for B. B is going too slow, and has misjudged pace if thinking he is riding a waiting race, he finds himself 15 yards behind at half distance, and he would discover his mistake too late to rectify it. A would not come back, and B would never get up in time.

Apply this to your race riding. You know what your pony or horse can do, and how he does it easiest, and don't get flurried at the eccentricities of your opponents, if they have gone faster than they should have, they will come back. This is why a horse is given to make the pace, to try and induce the man who does not understand judging pace, to hurry and so ruin his chance.

Oats are the best grain to train on, but if you cannot even get Indian oats, and have to give gram, don't imagine by giving too much gram you improve your horse's chance, a horse's health depends on his digestion, and gram is heating. Mix a little jowarree with it, lowering the gram, Belooch mares work hard on jowarree alone. Don't be afraid to give a carrot or two every day, and even a little lock of lucerne.

In India the hay is dried hurryalee, dry it for two days in the sun and beat out the earth, never wash it.

The more a horse lies down the better. Let him have a quiet loose box, with lots of bedding, anything that a greedy horse won't eat. Muzzles are uncomfortable things, and you want your horse to rest.

Endless hand rubbing of legs, and plenty of water to the feet, and see your bandages are not tight.

Bring your horse to the post very hard, very healthy and cheerful, what a professional would call not quite wound up. A horse remains in tip-top condition a very short time, and if you attempt too much, too much galloping, too much corn, you may find him with shaken nerves, shin sore, and ill. (See page 13—"Good Condition.")

NOW FOR THE RACE.

Get the best start you can, whether it is for a 3 mile steeplechase or a half-mile flurry. In a steeplechase it pays to be in the first lot, at the first fence, you get a clear jump, and are not baulked by refusers. Again if you make a slow start, and lose ground through carelessness, the horse is upset, and tries to catch the leaders, so you are led into a struggle to hold him, which tires man and horse. But get away well without bucketing or racing, and being among the leaders the horse will take less out of himself, and judging pace you can wait in front.

Half the cause of refusing at a fence is the whip; take a pull to steady the horse 50 yards from it, and come at the fence holding with both hands, with an even pressure, and sit quiet, your horse has then a chance of deciding on his take-off place. But raise your whip and slacken your reins and the horse baulks and refuses. Just think if someone gave you a flick just as you were taking off for a jump, you would certainly baulk and refuse.

For a short race, the getting the start is everything, the horse cannot jump into his stride if the weight is on his forehead, get him a little on his haunches, and be on the move coming up from a little behind with your eyes on the distant flag, and then you get well away the moment it drops. It is not *where* you start that matters so much, you may be half a length behind at the fall of the flag, but it is *how* you start that will put you two lengths to the good.

During the race stand in your stirrups, and ease the horse all you can, remaining very quiet. To finish you sit down to ride, drawing your legs back, you ride with your hands, but not that circular motion. The whip in an amateur's hands is often worse than useless.

There are only two times when a tyro is justified in using the whip: First when he is leading within 50 yards from home, and the second horse is at the girths creeping up, and he feels that he is beat unless some desperate effort is made. Then steadying the horse for two or three strides, and still holding the horse's head, he may give two strokes and then ride all he knows. The other time is when he is just behind and feels that he cannot get up, then steady for two or three strides, two cuts and ride hard.

If you loose your horse's head to flog you stop your horse. The whip is little good unless you steady the horse, steadying is not pulling him out of his stride, it is more ceasing to ride for two or three strides, and then keeping a firm hold of his head, the two cuts and ride all you can. But till this effort has to be made be as still and quiet as you can. Spurs are of little use to the tyro. Don't try to make a tight finish, and don't distress your horse by winning by twenty lengths, and don't let any old hand trick you into flogging before the time, you must realise that in a tyro's hands flogging stops a horse, especially is this certain if you slack the reins. A professional may be able to make an effort 100 yards long, but no amateur could, if he tries he is certain to stop his horse.

Many an amateur has lost a race through not being fit himself, the horse would have won. Getting fit means taking lots of exercise, such as riding, tennis, shooting, and so getting into hard condition. Getting fat off by oil lamp sweats is not getting into condition, or wind, it will only shake your nerves. Always go round the course before the race to see where it is heavy going, and where good going, and to study the fences.

To train a horse for hurdle racing, he has to gallop over his fences without any checking. To teach him this build 2-ft. 6-in. hurdles stiff, and gallop over them, putting them up gradually day by day till you reach the proper height. There is one hint I might offer in riding fast at a fence, if your horse's head is at your opponent's girths, and the horses are close alongside, when that leading horse takes off, and having an extra 6 ft. of distance to clear, there may be disaster. If you get your opponent into that position racing over hurdles, if as your horse rises you say "come up," his horse will most probably come down.

The Building of a Rick.

We see so often heated ricks, and even ricks catching fire, yet with a very simple precaution this should never occur. Farmers tell you that when they think a rick may overheat, they pull a sack up the centre as they build to make a chimney; but they forget that as long as the sack is in the chimney the orifice is closed. Again, if the sack is out, and the orifice is open, how is the hot air to rise if there is no air to push it up? But, if you lay a line of 6-inch drain pipes from the outside to the centre of the rick, and over the end of these pipes erect three long hop poles in a triangle tied at the top, the cold air rushing in makes a draught, which will suck the heat out of the rick, especially if in two other places you lay rows of drain pipes *without the chimneys* from the outside to the middle. The rick cannot overheat, but the hay will dry in the rick. Of course the rick, while building, must have an awning over, 6 feet above the hay, to keep out the rain. The poles are easily pulled out when all is safe. With a very long rick two chimneys may be wanted. The plan is simple, cheap, and effective. They do this in the North of Scotland, where they cannot help putting damp oats and hay into ricks. It is done in India in the monsoon.

Rinderpest.

This seems to be a disease where the microbe attacks the blood, it takes from four days to a week to develop, and the animal dies a week afterwards.

It attacks deer as well as oxen.

The animal is dull, with coat harsh, hot muzzle, and the ox has fever and cannot chew the cud. The dung smells bad, and there is a cough, discharge of tears which scald the skin, and the eyes are red and sometimes ulcerated.

Inneculation is said to ward off the disease. The disease is highly contagious, dung and litter should be burnt, and the ox buried deep, in lime if possible.

For a remedy, take Mr. Meyrick's suggestion for Anthrax. (Page 55.)

Pleuro-Pneumonia or Lung-Sick.

The microbe attacks the lungs and respiratory organs of oxen, it is contagious. Period of incubation, three to six weeks. Begins with a short, dry cough, gradually the breathing gets affected, the ox arches his back, the cough gets painful, pressure on the side hurts him, he has fever, the legs swell, and he dies suffocated.

Lung-Sick can be prevented by inoculation. Open the chest, and there will be a lot of fluid round the lungs; the inoculation is often done with this fluid, but I saw better results gained, by draining this away, then cut open the lung, and fill a small bottle from the fluid in the lung itself; a lancet is dipped in this, and the inoculation is done towards the end of the tail. The ox, if healthy, is sick for a week from the effect.

Any ox suspected of Lung-sick should be isolated at once.

I know of no medicine, but as it is a disease caused by a microbe, it might be as well to try Mr. Meyrick's treatment for Anthrax in the early stages. (Page 55.)

Dikkop

Is a disease that attacks horses, but I do not think it is Horse sickness—it is more like Loodhiana fever or Anthrax, with the swelling about the head and neck. (See Anthrax.)

It is caused by a microbe that comes on grass grown in swamps or putrid water; when any of these diseases are feared don't let the horse or ox feed while there is dew on the grass.

I have put these short notes in, for though Rinderpest and Lung-sick are not diseases of the horse, yet in the course of your travels you may perhaps find yourself suddenly in charge of sick oxen, and it is as well to know how to diagnose these diseases, though, except inoculation and isolation, and shooting, there is not much that can be done. Still, I have mentioned Mr. Meyrick's remedies. (See Anthrax.)

INDEX.

	PAGE.		PAGE.
Age	10	Condition, Dealers' ..	12
Anthrax	55	Condition, Good	13
Ball, to give	51	Condition, Bad	13
Bandaging	53	Conformation of the Horse	5
Barley	18	Cooling Lotion	58
Beans	19	Corns	35
Bedding	21	Cough	40
Bitting	64	Cracked Heels	34
Blistering	51	Curbs	58
Bloody Urine	49	Diseases, first sign ..	39
Bran Mash	18	Diarrhœa	46
Breaking-out in Stable ..	24	Dikkop	98
Breeding	14	Disinfecting Ships and	
Broken Wind	42	Stables	38
Brushing	31	Drenching	50
Building Ricks	97	Driving	75
Bursatee	48	Dummy Horse	80
Buying a Horse	5	Embarkation of Horses ..	25
Camels	66	Enlargement of Fetlocks	66
Carrots	20	Enteritis	44
Catarrh	39	Entraining Horses ..	75
Cleaning Saddlery	63	Eye Examination	49
Cleaning Bits	64	False Quarter	35
Clicking	32	Farcy	41
Clipping	24	Feeding Hours	23
Clothing	23	Feet	8—38
Clover	17	Fever	45
Colic	42	Finishing	95
Colour	10	First sign Illness	39

INDEX.

	PAGE.		PAGE.
Flatulent Colic	43	Ossified Fetlocks	53
Flies, to keep off	62	Over Purging	50
Foods	15	Over Reaching	32
Fomenting	51	Pack Saddles	68
Founder	36	Paraffin Oil	47
Foreleg	8	Paralysis of Loins	54
Girth Galls	60	Physic, giving	49
Glanders	41	Polo Ponies	79
Gram	19	Polo play Rules	82
Green Wheat	18	Potatoes	19
Grooming	23	Prurigo	46
Gymkhana	93	Punctured Foot	35
Hay	15	Purging	50
Hock	7	Quittor	35
Horse Breaking	70—74	Race Riding (Amateur) ..	94
Horse Sickness	56	Ricked Back	55
Hurryalee	16	Rinderpest	97
Indian Corn	20	Ringbone	54
Inflammation of Feet ..	36	Roaring	42
Inflammation, Intestines	44	Saddle Dubbing	64
Judging Pace	93	Saddling	69
Laminitis	37	Salt	13
Lampas	47	Sanderack	33
Laryngitis	40	Seedy Toe	35
Linseed	18	Shoeing	29
Liver Disease	44	„ Difficult to Shoe ..	89
Long Distance Riding ..	27	Sidebones	37
Lucerne	20	Singeing	24
Lung-Sick	98	Sitfast	60
Mange	47	Skin Diseases	46
Martingales	69	Sore Backs	59
Measuring Polo Ponies ..	83	Sore Throat	40
Mules	68	Spavin	53
Navicular	37	Speedy Cutting	32
Oatmeal Gruel	20	Splints	52
Oats	17	Stable Management ..	23
Ophthalmia	48	Stable Vice	88

INDEX.

	PAGE.		PAGE.
Strains	56	Turnips	20
Start for Race	95	Twitch	73
Strangles	41	Vetting	8
Summering Hunters	65	Vice	87
Surfeit	47	Villitis	32
Tares	17	Warbles	60
Thick Wind	42	Warts	48
Thorns	58	Washing Legs	23
Thrush	33	Water	21
Tips	31	Weights and Measures	65
To Throw a Horse	72	Wheat	18
Training Polo Players	81	Windgalls	38
Trocar and Cannula	43	Worms	45
Training for Gymkhana	93-94	Wounds	62





